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PENCIL POINTS

A JOURNAL FOR
THE DRAFTING ROOM

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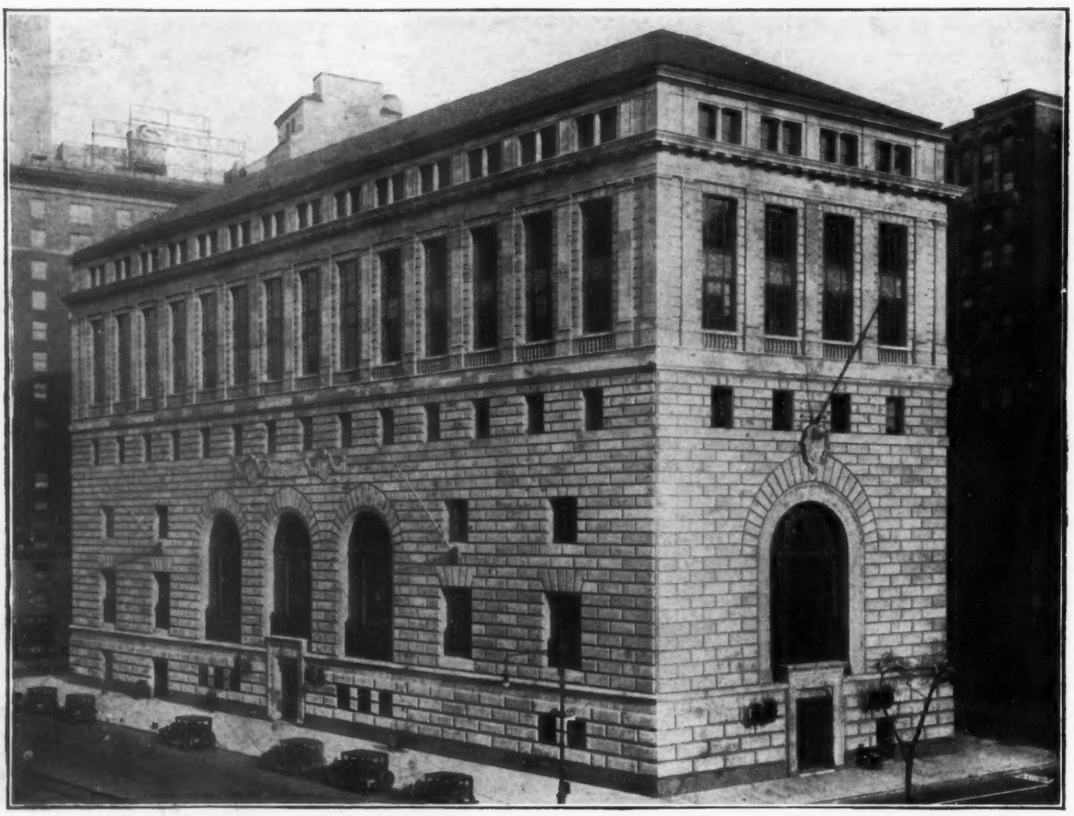

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PENCIL POINTS

An Illustrated Monthly JOURNAL for the DRAFTING ROOM *Edited by* RUSSELL F. WHITEHEAD KENNETH REID & E. L. CLEAVER *Published by* THE PENCIL POINTS PRESS, INC.
Ralph Reinhold, *President*, L. F. Nellis, *Vice-President*, William V. Montgomery, *Secretary*

ARCHITECTURAL ECONOMICS AND THE DRAFTSMAN

EVERY STUDENT of architecture and every draftsman, as well as every practicing architect, should read with the greatest care the series of articles written by Mr. Kyson from data collected by the Architects' League of Hollywood, the first of which (there will be three) appears in this issue of PENCIL POINTS.

A draftsman, if he does not stop to think about it, might very well say to himself "Why should I worry as to whether the boss makes a profit or not? If he has a good year he doesn't split his profits with me so why should I be concerned in the matter at all?"

Whether the architects' offices of this country make a fair average profit or not from the work they do is of the greatest possible concern to every employee as well as to every employer. Many architects have told us that they couldn't make any money for themselves because they have to pay their draftsmen so much. On the other hand, hundreds of draftsmen have told us that they are utterly discouraged with the vocation they have chosen because the compensation is so small and advancement so difficult.

And this, mind you, after a period of unprecedented activity in the building industries which has existed without interruption for seven years. There is something wrong somewhere and the Architects' League of Hollywood has made a commendable effort to ascertain what the trouble is, to analyze the whole matter from a greater body of data than has ever before been collected on the subject and to set forth clearly the results of their investigation together with specific and definite recommendations for curing the troubles that have been disclosed.

Many draftsmen have expressed to us the feeling that they were not getting a square deal from their employers, that they were working for very much less than they should in order that the architects who employ them may make a large profit. We believe this is not the case. We believe rather that the architect as well as the draftsman has on the average received inadequate financial returns for the services rendered. We believe that most architects are willing to share their prosperity with those employed by them if they have any prosperity to share. We know of an architectural firm that showed a loss of eight thousand dollars for 1928 without reducing or attempting to reduce the salary of a single draftsman employed by them. We know of other architects who do not themselves take as salary or drawing account any more than they pay to their best men. Every draftsman as well as every architect should endeavor to understand these matters so that proper economies may be introduced into the office for the benefit of all. If the present schedule of fees in force in the office is inadequate that fact should be recognized and corrected. Every opportunity should be grasped to inform those likely to employ the services of architects of the exact nature and importance of the service rendered. The reason that many offices are just "breaking even" or operating at a loss is clearly because they do not know how to operate as they should and are meeting the competition of other offices that are no more intelligently conducted than theirs.

This first article serves to introduce the subject; subsequent installments should be carefully studied by every man in the profession of architecture, no matter what his precise status may be.

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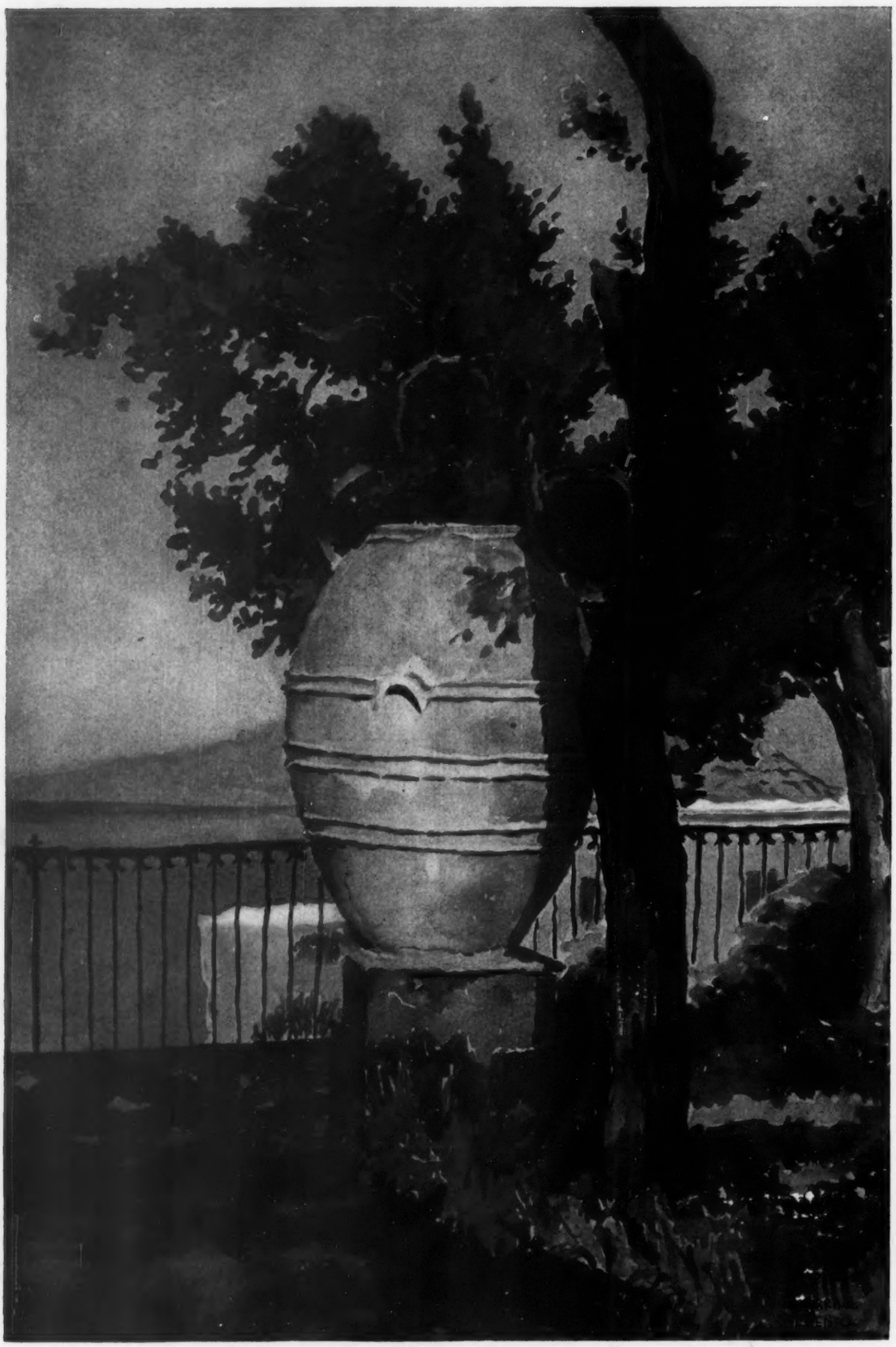

FROM A WATER COLOR BY J. L. BERRALL—"ON A TERRACE AT SORRENTO"

A SIMPLE SUBJECT, SKILFULLY HANDLED—SEE ARTICLE ON PAGE 317

PENCIL POINTS

Volume X May, 1929 Number 5

THE ARCHITECT'S PROFIT AND PRODUCTION COST

Text written by Charles Kyson from data collected and compiled by the
ARCHITECTS' LEAGUE OF HOLLYWOOD

WHAT IS THIS all about and what value has it for me? The answer to this question will probably determine whether you will care to read further—and the answer? Well, naturally, you are keenly alert to any activity which will make your business or profession more successful and more profitable. How this can be accomplished, we think, is clearly set forth in the following pages. We are reversing the customary procedure—we want you to read this. Therefore, we are showing the advantages to you of the following cost data, before we have explained all our theories and findings. Remember, this is the result of three years of intensive effort. The overhead and production costs later appearing in this article were ascertained after having sent a questionnaire to 8,000 architects in the United States. Modestly we state that this article is authoritative and interesting and will be exceedingly profitable to you.

How to get a decent, worthwhile fee for your architectural services; how to get a compensation sufficient to make a fair profit for yourself; how to get paid enough to make adequately studied sketches and working drawings so that the resultant buildings will be a satisfaction to your client and a boost for you;—these questions are clearly answered hereafter.

Now, to accomplish these things in the face of unintelligent competition is not easy. People, through ignorance, are very loath to pay a fair price to a capable architect. And yet these same persons will spend money freely for almost any other material thing going into their buildings.

Do You Know

HOW to get a decent, worthwhile fee for your architectural services? HOW to get a compensation sufficient to make a fair profit for yourself? HOW to get paid enough to make adequately studied sketches and working drawings so that the resultant buildings will be a satisfaction to your clients and a boost for you?

These questions will be clearly answered hereafter in this and in the June and July issues of PENCIL POINTS.

AN EXAMPLE SHOWING HOW THIS COST DATA CAN INCREASE YOUR FEES

Supposing a building committee came into your office and wanted to plan a church, and you were asked how much you would charge to make the plans and supervise its construction. Supposing your answer was 8%. After you had revived the feminine members of the committee who had passed out, you might be dazedly asked how you could have the effrontery to ask such an outrageous sum. How would you justify this charge? How would you convince them that you might actually be spending 4.5% of the building cost to produce the plans alone, without profit or supervision? Now, if you had only your personal books to prove your costs, would they not think you extravagant in the conduct of your business? Do you believe they would take your unsupported figures seriously? You know very well that they wouldn't do any such thing.

PROVING THE JUSTICE OF YOUR DEMAND FOR FAIR COMPENSATION

Supposing, on the other hand, you were in a position to say: "Ladies and gentlemen, in setting out to produce your church edifice you must realize that its plans and specifications are in reality the foundation of your building—yes, even more than the concrete that goes under it. Its practical arrangement—the artistic success of its appearance—all these are determined in the plans. Your own personal reputations for achieving successful results are, to a great degree,

bound up in these plans. In the eyes of your congregation you are judged by the church which you, as a committee, will build. Now, frankly, my friends, you would never consider a cheap or inadequate foundation for your building, would you? And so, if the architectural service is its real foundation then it becomes obvious that money thus spent is the most important and vitally productive sum you are investing in your entire building operation.

"In order to help you determine what is a fair amount to pay, a cost survey was recently made by a prominent architectural organization. A cost questionnaire was sent to eight thousand architects' offices all over the United States, the purpose of this being to obtain a consensus of expert opinion as to what really constitutes a reasonable cost for preparing a complete and adequately studied set of working drawings for various types of buildings.

"The 8.0% you are to pay me is divided into 4.8% for the plans, and 3.2% for supervision. The table No. 3, which I am showing you, proves that the average church plans really cost the architect 4.5%. As you are paying me 4.8%, you can see my margin of profit is very small, and my fee of 8.0% is a very reasonable one."

Certainly it would be a very stubborn and unintelligent committee which would contest or question these authentic and convincing figures. This is the type of proof which appeals to the fair minded and intelligent business man. The average person will spend money for results if he can be convinced of the necessity for so doing—if he is really sure it will be profitable to him.

The following cost data thus used intelligently can easily be made to increase your fees. You are proving that the money paid to you is not all profit. Your client will have an increased respect for you—he will recognize that in addition to being an artist you are also a business man.

THE ADVANTAGE OF THIS COST DATA TO YOU PROVIDED YOU ARE OBLIGED TO SUE A CLIENT FOR THE COLLECTION OF COMMISSION

Suppose that you were faced with the unpleasant necessity of having to sue a client for the collection of your commission. The following happened to one architect. He had a written contract for planning a house, amounting to 10% — 6% for the drawings and 4% for supervision. The plans were completed, the bids taken, and they came within the preliminary estimate of the architect. For purely personal reasons the client decided not to build and, as the plans were of no value to him, he reasoned the architect was not justified in charging the full amount. There were some minor technicalities in the contract which the client's lawyer seized upon, and the case was taken into court. Expert testimony was introduced on both sides. The architect had a fellow practitioner testify that the charge of 6% was reasonable and fair, and there was very little profit in the transaction, if any, at that fee. The client, on the other hand, found another architect who testified that under the circumstances 2% was a very reasonable compensation. In view of this highly conflicting expert testimony among members of the same profession, the court decided to split the difference and that a 3% charge was fair, and ruled accordingly. Now, had the architect been able to introduce the kind of positive unquestionable evidence as set forth later in this text, he would probably have won.

Another interesting case showing the value of this cost data was told by an architect who wrote us a letter expressing his gratitude for our efforts. He received our booklet "The Architect and His Profits" the day before he was to appear in court in his suit for a contested fee. The tabulated lists showing production costs were inserted as evidence and he won his case. He attributed his success to the cost data which we had supplied him.

Sometime the very momentum of our business tempts us to follow along in the way of obsolete tradition without questioning too closely methods which time has outworn; and now

FOR THE SAKE OF YOUR BUSINESS SUCCESS AND THE WELFARE OF YOUR FAMILY ASK YOURSELF THE FOLLOWING QUESTIONS:

Have you any money in the bank?

Are you out of debt?

Are your bills paid promptly?

Do you own your own home free of debt?

Are you satisfied with your profession as a lucrative business?

Are you able to provide for your wife and family as men in other professions are able to do?

Are you able to educate and give your children an adequate start in life?

Are your business profits sufficient to insure you against a dependent old age?

The man who fools himself is the worst fooled of men. Ruthlessly force yourself to answer these questions. This self-discipline may waken and lift you from the rut and put you on the highroad to prosperity.

Did you ever ask yourself why we architects can't have homes, comparable to those of our fellow practitioners in, let us say, the professions of medicine or law, homes in which we are proud to receive our friends and where our children can entertain with a sense of pride and happiness? The same applies to automobiles we drive and to our general standards of living.

WHY THE LOW CREDIT RATING OF THE ARCHITECT?

Recently we had occasion to talk to the head of a merchants' credit association, and we asked him frankly how the credit rating of the members of the

profession of architecture stood relative to other businesses and professions. His answer was as follows:

"They are practically at the bottom of the list in almost all instances, at best, they are considered 'slow pay.' Very few have an A-1 credit rating."

Now friend architect, truly this points to something radically wrong with the profession or business of architecture, and no business or profession can aspire to the front rank of dignity and reputability with such an impractical reputation. There is no question but that the average architect is an honest, decent, and self-respecting citizen. He is essentially the type who would take pride in his ability to pay his bills promptly and keep his credit rating at an A-1 level, but apparently some economic factor—some inherent element—is wrong in his profession and prevents him. What is it? Why? How can it be corrected?

OUR RESPONSIBILITY TO OTHERS

We have placed ourselves in a position of responsibility when we start in business on our own. The result of our failure or success is not confined to ourselves alone but to those who have trustingly placed their future in our hands—our wives, our children. The man of courage and unfaltering integrity takes pride in successful accomplishment. It is unthinkable and intolerable for him to see his wife with a pathetic, trusting patience, indulging in petty, unnecessary and heartbreaking economies. All this, merely because her husband dodges behind the silly, moth-eaten excuse of an artistic temperament, as a justification for his lack of initiative or progressiveness in acquiring the rudimentary principles of business procedure necessary to the successful conduct of his profession.

IS OUR TROUBLE ETHICAL OR ECONOMIC?

The difficulty unquestionably lies in the fact that architects really DO NOT KNOW HOW MUCH IT COSTS THEM TO PRODUCE ARCHITECTURAL SERVICE, AND DO NOT DEMAND ENOUGH TO PAY THEIR COSTS AND ALLOW THEMSELVES A REASONABLE PROFIT. The matter of charging a fair fee in the past has been commonly regarded as a matter of ethics, when, as a matter of fact, it is more correctly an economic problem.

Let us get down to a specific case. For example, the American Institute of Architects, one of the largest and most influential architectural bodies in the world, decrees that it is ethical to charge 6% for commercial work—4% for the plans and 2% for the supervision. Then why is it that a great number of architects charge anything from ½% to 2% for this class of work? That architects quite generally cut under this A.I.A. schedule is a well known fact. This applies to some architects' offices of repute and standing as well as to those of the younger men of the profession. It has been found to be a common practice for architects to work for 50% of the fee as established by the A.I.A. In fact, 2% for the plans and specifications alone for commercial work is considered by many business men to be very high pay for the services of an architect.

Now, one of two things must be the matter. Either the American Institute of Architects is wrong and advocates too high a schedule of charges, or it is correct in its contention and many of the individual members of the profession are making, not an ethical, but an economic, mistake in charging a less amount for their services. In so doing they are courting economic and business disaster. Now the sensible question arises, how much does it really cost to produce adequate architectural service?

A SENSIBLE AND AUTHENTIC ANSWER TO THE QUESTIONS PERPLEXING THE PROFESSION OR BUSINESS OF ARCHITECTURE

In order to reply to this question, the Architects' League of Hollywood has given it three years of very intensive study. 8,000 questionnaires were sent to architects all over the United States, asking them to fill out certain blanks showing what, based on real experience, was the actual cost to produce the plans and specifications alone, without profit or cost of supervision, on various types of buildings. The Architects' League of Hollywood was deluged with an avalanche of correspondence, replies, questions, suggestions, etc., to such an extent that it became quite apparent that not one architect out of twenty-five had the remotest conception of how much it cost him to run his business or to produce a given set of plans and specifications. We also found that architects were not the only ones who were ignorant as to their costs of production. While the average American business man may have moaned and groaned at the hardships of making up an income tax report, it has been a blessing in disguise. At last he has been forced to analyze his business and his production costs. The facts indicated in a governmental report of the Federal Trade Commission are interesting and furnish something of an alibi for the architect.

THE GREAT GUESSING GAME—BUSINESS! !

To give you an idea of how general is this ignorance of production costs in all businesses in the United States, the Federal Trade Commission made an investigation of 770,000 businesses in this country, and found that fifty per cent of the men engaged in those businesses GUESSED at their costs, forty per cent ESTIMATED their costs, and only TEN PER CENT KNEW THEIR COSTS! Is it any wonder then that this same Commission found that 90% of business failures could have been prevented by proper accounting methods?

What really is this thing, "profit," we hear so much about and know so little of?

WHAT IS PROFIT?

Wheeler Sammons of the editorial staff of System Magazine, in his book entitled "Keeping Up with Rising Costs," writes as follows: "Profit is not interest on investment. It is not a salary paid for managing the business. Both these are items which the proprietor should properly pay himself as investor in and manager of his own business. There is no profit if the customers buy at a price which only takes care of costs to do business, and fills at market rate a pay envelope for the distributor. The proprietor of a business is entitled to a percentage over and above all the items of his running expenses plus salary and plus bank interest. All degrees of business talent exist above THE LOW LIMIT SET BY THOSE WHO GET NO MORE THAN BANK INTEREST AND A WAGE OUT OF THEIR ENTERPRISE."

WHAT ARCHITECTS ARE FINDING OUT ABOUT OVERHEAD

The first step to a proper solution of the problem of cost finding must be a recognition of all the fixed and other charges, essential to the proper conduct of a business. To determine this, the booklet or questionnaire entitled "The Architect's Cost and Profit" was sent to the aforementioned 8,000 architects. In this valuable booklet was set forth all of the items constituting the overhead of an architect's business. Among the many replies received, expressing surprise, pain and grief, was one fairly typical of the lot. This architect said, "I'm enclosing herewith your form filled out showing my overhead costs. I have practiced architecture for twenty-five years and I never dreamed for a moment during that time that I had an overhead anywhere nearly approaching what it actually was. I honestly believe that if I had had the information contained in your booklet 'The Architect's Cost and Profit' when I started in the practice of my profession, I would have been better off today by fully $150,000. I have had plenty of business, but I have never made any money out of it. I have gotten only a fair living from the practice of my profession, and you have shown me the reason why I have done no more than that.

"I want to extend to you my heart-felt gratitude for this invaluable information. I consider this architectural contribution that you have made, to be without question, the most valuable that has ever been presented to the architectural profession. I believe that systematic and concerted efforts by the various architectural societies along this line of compiling and disseminating this type of information, both to the profession and to the public, will do much to lead the architectural profession out of the economic morass in which it so unhappily finds itself at the present day."

This is interesting, not as an eulogistic tribute, but as being a very typical expression of opinion and an acknowledgment of the ignorance which exists upon the part of architects as to their production costs.

OTHER THINGS SPELLED BY THE WORD PROFIT

There is a reward for all right effort, particularly if it be intelligent. There are times when we get tired out—fed up. Interesting as our profession is, we occasionally have a desire to chuck it all for a while. It is then we reap one of the rewards of a properly and intelligently conducted business. The financial surplus we have piled up enables us to enjoy the romance and fascination of travel—a change of scene for eyes jaded from the monotonous humdrum of Main Street, luncheon clubs, business, and routine.

Periodically to leave all these behind and for an entrancing while to feast our eyes on strange peoples and scenes—to view a colorful sunset from an old Moorish tower, to look upon the sublime and misty massing of an old world cathedral—or to be intrigued by the turn of a colorful street in Northern Africa! To an architect this is the breath of life! Without it, there is always the baffling sense of a cheated, thwarted desire—the wings of his fancy clipped. These things, so to be desired, are achieved by the word spelled P-R-O-F-I-T.

MAKE THE ACQUAINTANCE OF OLD DRAGON OVERHEAD AND LEARN TO DODGE THE SWISH OF HIS DEVASTATING TAIL

Now let us meet and courageously face that fearsome monster "Old Dragon Overhead," and while we may not be able to emulate Saint George and slay him, we can drive the scaly and relentless old reptile into an economic cage where we can study his habits. We can thus do something to prevent his poisonous breath from shriveling up the hopes and aspirations of the uninitiated, the unwary and the uninformed. We voice a note of warning to the young and hopeful architect who ventures forth from the protecting wings of a good salary to be on his own. "Verily, verily, we say unto you, Old Dragon Overhead will get you if you don't watch out." We can, in a spirit of *camaraderie*, provide the valorous rookie with the shining shield and buckler of knowledge with which to fight his valiant battle.

Truly, a quick and painful method of business suicide awaits anyone starting out who ignores any or all of such items as rent, light, heat, stenographic or accounting services, telephone, blueprinting, insurance, salaries, general office expense, and a host of other important and petty items. A more complete list of those is shown in Table No. 1, and they constitute an amazingly assertive cost amounting to a painful total at the end of the month. Their clocklike regularity month after month throughout the year is

(Continued on page 294)

AVERAGE MONTHLY OVERHEAD OF THE ARCHITECT

TABLE NO. 1

The following Table No. 1 is an itemized overhead of the average architectural office. The Architects' League of Hollywood has given this very exhaustive study and its members believe that Column "A" is practically the lowest overhead under which an architect can operate. In doing so he would probably have to use his house as his office and drafting room. This individual will usually emphatically and vehemently tell you, with a mistaken honesty, that he has no overhead. As a matter of fact it amounts to $840.00 a month or, assuming 2156 working hours per year, about $4.68 an hour, or approximately 8.0 cents per minute. In Column "B" is the overhead of what was found to be the average architect's office in the United States as shown by the returns to our questionnaire.

"A" Smallest Office Considered
"B" Average for a Small Office
"C" Your Own Overhead

		A	B	C
1.	Rent	$ 45.00	$ 100.00	.....
2.	Janitor Service	10.00	10.00	.....
3.	Heat and Light	3.00	7.00	.....
4.	Towel Service	.....	2.00	.....
5.	Stenographic Service	25.00	130.00	.....
6.	Bookkeeping; accounting	9.28	31.00	.....
7.	Drinking Water	.....	2.00	.....
8.	Telephones	9.56	15.70	.....
9.	Office Maintenance and Repairs	1.50	2.00	.....
10.	Depreciation on Office Equipment	5.00	25.00	.....
11.	Insurance (fire and burglary)	2.50	3.00	.....
12.	Insurance (liability)	1.00	1.00	.....
13.	Insurance (accident)	10.00	10.00	.....
14.	Taxes	5.50	6.45	.....
15.	Interest on Capital Invested in Office Equipment	6.00	12.00	.....
16.	Magazines	2.00	2.00	.....
17.	Stamps; petty cash	10.00	12.00	.....
18.	Charity	3.00	3.00	.....
19.	Club and Association Dues	5.00	5.00	.....
20.	Renewals to Equipment	4.00	5.00	.....
21.	Architectural Books	5.00	10.00	.....
22.	Telegrams and Express	4.00	5.00	.....
23.	Miscellaneous	5.00	15.00	.....
24.	Auto based on 1500 miles per month at $ .08 per mile	75.00	120.00	.....
25.	Travel	?	?	.....
26.	Long Distance Calls	1.32	4.00	.....
27.	Blue Printing, Stationery, Drawing Materials and Printing	62.00	81.21	.....
28.	Attorney fees	?	10.00	.....
29.	Photographs	7.00	22.30	.....
30.	Bad Debts	20.00	50.00	.....
31.	Advertising and Publicity	20.00	35.00	.....
32.	Expense of non-productive sketches	50.00	90.00	.....
33.	Business Promotion Expense	?	?	.....
34.	NON-PRODUCTIVE OR SLACK TIME	?	?	.....
35.	Drawing Account of $100 per Week or Salary to Architect	433.34	433.34	.....
36.	Manager's Salary	?	?	.....
	Total Overhead per Month	$ 840.00	$ 1,260.00	.....
	Overhead per Year	10,080.00	15,120.00	.....
	Overhead per Hour	4.68	7.00	.....

Overhead Costs are based on 2156 productive hours per year.

appalling. These constitute the menu of "Old Dragon Overhead."

AN EXPLANATION OF TABLE NO. 1 SHOWING THE ITEMS WHICH CONSTITUTE THE OVERHEAD OF AN ARCHITECTURAL BUSINESS

As a matter of fact, the foregoing table is almost an exact copy of the one which appeared in the booklet "The Architect's Cost and Profit" which was sent to so many architects throughout the United States. Naturally, overhead will vary. No two offices will be identically alike, but the significant fact stands forth with a startling clarity, that the items of expense in column "B" were found to be in practically exact accordance with the overhead of the average of these offices. For your convenience we have left column "C" blank so that you can fill in your own overhead for comparison. Consider this carefully; if you do not give consideration to each of the items herein set forth, and charge your client for them, you are a philanthropist and are giving him something to which he is not legitimately entitled. The average architect can ill-afford to be this type of gullible giver.

Referring to Table No. 1 it will be seen that the value of the architect's time per hour is as follows: There are 52 weeks per year. Deduct two weeks for a vacation, one week for holidays, leaves 49 productive weeks per year. 49 weeks x 44 hours per week equals 2156 productive hours per year, or the time the architect has in which to produce his overhead and make a profit for himself. The items composing the overhead in the above table are very comprehensive. When an overhead is ordinarily figured it is not as complete as the one above enumerated. However, bear this in mind, if you do not charge these items into your overhead, you are smiply misleading yourself.

This schedule of 44 hours per week many Eastern architects thought was too high and advocated 39.0 hours per week. For quick figuring 2000 productive hours per year is about right, and in an argument with a client this figure makes the presentation of figures an easy mental calculation.

ANALYSIS OF TABLE NO 1

Such items as rent, heat, light, janitor service, telephone, and taxes are more or less rudimentary and practically everyone recognizes them as a part of his overhead. There are other items herein indicated which frequently escape our notice, upon which we do not count, and yet they have to be met and, of course, are automatically subtracted from our mythical and supposed profits. These are Old Dragon Overhead's rations—the inexorable tithe exacted by that omnipresent and voracious monster. In our imagination we can see the old Devil furiously blow forth joyous snorts of fire and sparks and bellow in demoniac laughter at our frantic efforts to locate our supposed but most illusive "Profit." Whether we receive a salary—whether a profit—whether our family starve or not, is a matter of callous indifference to the relentless, hard-shelled old reptile. HE DEMANDS AND GETS HIS! Whether we get ours or not—well that's our funeral—and not infrequently it is!

STENOGRAPHIC SERVICE—ITEM NO. 5

Many architects do not give this proper consideration. Time is all that an architect has for sale. If he occupies himself in the activities which could easily be delegated to a girl at $25.00 or $30.00 a week, he is evaluating his own time on the same basis as that girl and the dragon chuckles and commences to lick his chops in anticipation. In other words the Architect is not properly organizing his own time to produce efficient and profitable results. An intelligent secretary can save an enormous amount of valuable time to the successful and busy architect and such money spent on her salary is money well invested.

BOOKKEEPING AND ACCOUNTING—ITEM NO. 6

We have found in our investigations that comparatively few architects keep an adequate set of books. Consequently, they have no basis on which to analyze their business. Their professional and business voyage is over uncharted seas. They are sailing forth, enveloped in a fog of ignorance—blind and deaf are these valorously ignorant mariners to the economic thundering of the breakers ahead—to the dark snarling currents that flow over hidden, jagged reefs of the seas of business. To them a shipwreck is almost inevitable. Little chance has their imperiled bark of reaching the sheltered harbors of the home port of success. At best they can be but luckless drifters harassed by worry and trouble, the victim of every uncertain economic breeze and whim of circumstance. Money spent in keeping an adequate bookkeeping and cost finding system is an essential investment to any properly conducted business having any chance of achieving success. Such a system must go further than being a mere system of keeping books. IT MUST GO ON INTO THE REALM OF ACTUAL COST FINDING so that an architect may not merely know, whether he is making or losing money, but be accurately aware of how much each job or operation has made or has lost for him. Unless his bookkeeping and cost accounting can show these facts, it is inadequate and he can well hark for the warning thunder of the relentless waves crashing on the reefs of disaster. An adequate bookkeeping and cost finding system is so vital and essential that it can be a determining factor as to whether a business will fail or succeed.

Under present conditions, many architects, due to their lack of training in business and cost finding

methods are, with mistaken energy and philanthropy, simply running, gratis, a collection agency for their draftsmen.

OFFICE MAINTENANCE AND REPAIRS—ITEM NO. 9

This is one of those inescapable, yet elusive items which frequently do not receive consideration, but have to be met. The same applies to depreciation on office equipment and is somewhat analogous. The rate of depreciation on drawing equipment, boards, T squares, etc., is very great. They wear out rapidly and there is a high percentage of loss.

INSURANCE—ITEMS NOS. 11, 12, AND 13

The item of fire insurance is a vital and necessary one because the drawings or records of an architect are very valuable. Particularly is this true if the drawings are in the process of preparation. If a fire should destroy them, they would have to be immediately duplicated and this would result in a tremendous loss to the architect. Consequently, adequate fire insurance is a very essential and necessary item of overhead. The matter of liability insurance is frequently a matter of law in many states and an employer is obliged to carry compensation and liability insurance to protect his employees. Frequently in the case of the architect, his men are engaged in what is considered the somewhat hazardous occupation of inspecting buildings and they are constantly traveling about in automobiles. If any employee of the architect is hurt in those occupations, and the architect has no insurance to cover this, the resultant loss can truly be amazing and annihilating. The same applies particularly to any injury to the public. If, for example, a superintendent, employed by an architect, should strike and fatally injure someone, the resulting suit against the architect might easily wipe out of existence his personal fortune and his business as well.

INSURANCE, ACCIDENT—ITEM NO. 13

The matter of personal accident insurance is one which receives very little consideration on the part of most professional men, and yet it is, or can be, vitally essential. For example, we know of an Architect who suffered a fall from a building which broke his leg. The result was that more than a year of productive endeavor was taken out of his business life, due to the physical and nervous condition in which he found himself. The fact that he carried a fairly good sized accident policy resulted in his economic salvation at this particular period. In this day of rapid transportation this element of risk is always present. Any business or professional man should consider it a vital and essential element of his overhead, otherwise, his business may suffer an irreparable loss.

TAXES—ITEM NO. 14

Of course this is an inescapable item, and yet it offers much food for thought. There are not only the license and property taxes on business, but there is the income tax and, properly speaking, some allowance should be made in the overhead to take care of this necessary item (provided, of course, the architect is fortunate enough to make sufficient money so that his income becomes subject to taxation).

INTEREST ON CAPITAL INVESTED IN OFFICE EQUIPMENT—ITEM NO. 15

Money may be described as a commodity. It costs money to rent it, which of course is known as interest. If you have a certain amount of money tied up in your office equipment, like furniture, typewriters, adding machines, etc., that money is prevented from earning for you any interest. Therefore, it is costing you a certain amount per year. Some accountants do not consider this as an allowable item in one's overhead, but the fact remains that you've got to have it invested in your business, otherwise you cannot operate. If there is any question—try to borrow some without interest!

MAGAZINES—ITEM NO. 16; AND ARCHITECTURAL BOOKS—ITEM NO. 21

No well conducted architect's office operates without these items. Frequently, and perhaps in the majority of instances, however, these necessary items of expense are not included in the architect's overhead. There is no question that they should be.

AUTO EXPENSES—ITEM NO. 24

Few people realize how much it costs to operate an automobile. If you have never given it much thought, take a pencil and paper and figure out the cost of gas, oil, repairs, tires, taxes and insurance for liability, fire and theft; then consider the matter of mechanical depreciation of the car, plus the interest on the capital invested in the machine, and you will find it takes a poor sort of a car that won't cost at least $ .07 a mile. If the car is new and in the $1,500 or $1,600 class, it will cost all of $ .08 if not more.

Distances are so great that the business of architecture can no longer be practiced without the architect's using an automobile, and this expense must be charged into the overhead of his business. Whether this should be charged to a particular job or included in the general overhead is an individual problem. The latter course is the easier one. In considering putting in a cost finding system, remember simplicity is the key to effectiveness. Any fool can do a thing in a complicated manner, but to do it simply and efficiently—well, that is almost genius!

TRAVEL—ITEM NO. 25

By this is meant travel in the sense of visiting out-of-town jobs. Supposing the architect has to visit other cities or other states in the practice of his business, or that his employees have to do so, these expenses must be provided for. They can be either charged to

the overhead of the business, or directly to the various jobs.

Of course, there is the other type of travel which every architect should have, involving visits to other cities and countries for the refreshment of his ideas. If he is to keep in the foremost rank of his profession and be conversant with the latest that is going on in a fiercely progressive world, such travel can be of tremendous value to him. His clients benefit by it and it is only fair that the overhead should be charged with it. This is, of course, a highly variable quantity and is extremely individual. However, some allowance should be made for it in the computing of one's overhead.

BLUEPRINTING, STATIONERY, DRAWING MATERIALS, PRINTING, ETC.—ITEM NO. 27

Many architects charge their blueprinting directly to the job, which is an accurate method. However, in spite of this commendable practice, there will probably be some blueprinting which would have to be charged to the item of overhead. The other items, stationery, drawing materials, etc., are factors of expense of which every architect is aware.

ATTORNEY'S FEES—ITEM NO. 28

We all know what Sherman said about war, and this applies to the architect's profession or business. However careful we may be, it is impossible to escape an occasional tilt in court, and consequently some allowance should be made for proper legal advice and service.

PHOTOGRAPHS—ITEM NO. 29

Photographs form one of the best investments an architect can make. If pictures are taken illustrating the works he has executed, he can use them in selling his architectural services to his client. This method is better and costs much less than making free sketches in order to secure a commission. We urge that the younger members of the profession use every endeavor to provide themselves with more photographs of their work and to make fewer free sketches.

BAD DEBTS—ITEM NO. 30

The "Bad Debts" item is one which is perhaps open to question. Many clients would feel that they should not be required to pay for the bad debts of others and that the amount involved should come out of the architect's profits. Better business methods will cut this item down, but regardless of how careful you may be you will contract bad debts. Fifty dollars per month is little enough to charge and will probably not cover them. Merchants carry a charge for their bad debts in their overhead. From an accounting standpoint it is an allowable item. Watch this very carefully—many a promising business has met with shipwreck because of this item alone.

ADVERTISING AND PUBLICITY—ITEM NO. 31

This opens a wide subject for consideration and study. The Architects' League of Hollywood believes that both personal and mass advertising for architects is legitimate.

Only in the rarest of instances is the public willing to pay the architect the fee which he asks. Consequently, if the public is to receive the architectural service which we know is vital and necessary it should be educated out of its ignorance as to the value of such service. This can only be done by some form of publicity—by the written word in the newspapers and magazines, by personal contact, over the radio, or by direct mail and by word of mouth advertising. It costs money to educate the public, and yet in our case it is a vital necessity. It is far beyond the power or scope of the individual architect. If we are going to change the attitude of the public toward us, then, through the various architectural associations, we will have to instigate systematic, intelligent and sensible campaigns of publicity and advertising in our various communities to accomplish such results. This requires funds and consequently the architect should appropriate some portion of his income to this necessary and vital expense if he is to survive. We have put the amount of $35.00 per month down, it ought to be more. Certainly this is enough to start the argument —may it wax long and furious! It is to be hoped that in the budget of the architect of the future, a generous provision will be made for the vitally necessary item of advertising.

In some European countries the architects make a practice of donating a stipulated percentage of their incomes to this cause. It is part of their agreement in becoming members of their architectural societies.

EXPENSE OF NON-PRODUCTIVE SKETCHES—ITEM NO. 32

The expense of non-productive sketches is the great leak in the business of architecture. The advisability of submitting them is a much mooted question. Many architects consider this a legitimate, necessary method of getting business. There is no question that, in their eagerness to secure new business, they go to such foolishly extreme and economically questionable lengths that it becomes a serious financial drain on their business, and in many cases results in disaster. Architects should realize that other professions are not subject to the abuses of giving out free information to the extent found in the profession of architecture.

If you went to a good attorney, you wouldn't get very far in the process of asking for legal advice before he asked for a retainer, and if you asked him to submit a preliminary brief for your approval, showing how he was going to try your case before you decided to give him a job, the frigidity with which your proposition would be received would discount

the temperature of the North Pole. As our English cousins would say, "It really isn't done, you know!"

The same individual who would never think of asking an attorney to do anything of the sort will, without hesitation, ask an architect to give him an unlimited amount of free information, make sketches, plans, prospectus, etc. All this without hesitation or question, merely for the chance or honor of doing said client's particular job. The egotism of many clients is such that they feel the advertising and publicity attendant upon designing their building will be of great value to the struggling architect and should justly be a generous part of his compensation. This leads up to the necessity of

GETTING A RETAINER FEE

The following anecdote is illuminating, but is not particularly flattering to one of the world's oldest professions. It rather indicates the desirability of a retaining fee. One of the members of the Architects' League of Hollywood happened to overhear a conversation somewhat as follows: Two real estate salesmen were heard discussing the possibility of selling a piece of property. "Now, to make this sale we'll have to get some sketches of the building to go on the lot," said the first high-pressure conversationalist. "I know," said the second, "but we'll have to pay for them and who's going to put up the money?" "Pay for them!" said the first scandalized geographical merchant. "I should say not, we'll get some poor sap of an architect to make them for nothing, and hand him a fast line about his getting the job!"

Now, if that opinion is at all typical or is indicative of the standing the architect has in the eyes of the realtor, then many members of a business closely associated with ours will need to be educated as to the value of an architect's services. This must be done before our business can be put on a profitable basis.

If the architect has the same amount of courage as his legal brother, the attorney, and demands a retainer fee sufficient to pay the cost of the preliminary sketches, he will unquestionably lose a lot of business, but the greater portion of that business would ultimately prove utterly unprofitable, so that what the architect is supposed to have lost will be in reality an actual gain to him. Not one deal out of twenty-five of this fast promotive type is ever consummated or ever results in anything but a loss of money and time to the architect.

A legitimate or businesslike promoter who has the requisite ability and financial standing to put over a deal is certainly willing to pay a reasonable amount for his sketches. The fact that he is not willing to do so is usually an indication of his irresponsibility or lack of confidence in himself, both of which are essential to his consummating a successful deal.

Apply the acid test, get a retaining fee and you will cut down your losses. You may not do such a volume of business, but at least you will be paid for what you do. If architects as a class would get down to brass tacks and quit chasing the chimerical rainbow with a mythical pot of gold at its end, and devote more time and study to the execution of the work they actually get, they would be building on a sound basis and their reward would ultimately be the type of profitable business which inevitably gets into the hands of the successful.

BUSINESS PROMOTION—ITEM NO. 33

Most businesses are subject to some expense for business promotion. At present, the architect's principal contribution to this item is the free sketch. The methods of the realtor are different. His entire business is based upon the giving and taking of commissions, and so commissions have come to be regarded as a thoroughly legitimate transaction in all cases. The builder has recognized this, and he frequently offers to pay a commission to any realtor who gets him a job. Now, the average realtor does not know the difference between the architect and the builder. Thus, if the builder will pay him a commission and the architect will not, he naturally throws a job to the former.

Ethically and legally the architect cannot accept any hidden commission, trade discounts, etc., and his margin of profit is not sufficiently great to allow him to pay any such commission for getting work. Apparently the only solution, if the present condition is to be altered, is to educate the realtors and the public to the iniquities of this system and to the real dollar-and-cents' value of the architects' services. We have not filled in any amount under this heading. It is included here more to call your attention to an item of expense which is recognized in many businesses, but for which no provision is made in the business of architecture. Unquestionably this problem should receive some study by the various architectural societies, and their findings be broadcast, with the idea of helping the younger men who are starting in business.

DRAWING ACCOUNT OR SALARY FOR THE ARCHITECT—ITEM NO. 35

Here, without question, is the big leak in the business of the architect. He refuses to recognize his services as being worth anything at all, because with a sad frequency he will not allow for them in figuring his expense of doing business. Many architects would be very much insulted if anyone would tell them that their services were worth nothing, and yet they will insistently so value them. We have arbitrarily set a cost of $100.00 a week, or $433.34 a month as being the minimum salary which an architect should consider himself worth. If he figures on a less amount than this, he would actually be financially ahead by giving up his business and working for some other architect as a draftsman. Certainly, if an architect is doing a large volume of business, he should think it quite legitimate to charge a larger

salary than $100.00 a week in his overhead. This is a matter, however, of individual opinion.

Until you have established this practice of charging your jobs with a salary for your efforts, you will never be able to arrive at your true cost of doing business—you will never know how much a given set of plans will cost you. If you will consider that you are paying yourself a certain salary, and insist that you earn it by time faithfully and intelligently spent in constructive thinking, of finding better methods of conducting and getting new business, such an attitude of mind will stimulate your own personal activities and increase your volume of business and profits.

WHAT IS THE METHOD OF APPORTIONING OVERHEAD TO A GIVEN JOB?

The answer to this question cannot be made in a few words. There are several methods by which it can be done, and so we will submit them for your consideration. At this point, we are going to refer to a book gotten out by the Federal Trade Commission entitled "The Fundamentals of a Cost System for Manufacturers." It is rather interesting to get the point of view of the government cost experts who have made an exhaustive study of the subject. The following is a quotation from the introduction to this booklet.

"It is a fact few people realize that an accurate determination of costs is fundamentally relative to manufacturing efficiency. More and more concerns are joining the ranks of those who realize the necessity of knowing accurately their costs of manufacturing and selling. Every business man who joins in this work can feel that he is doing his part toward the improvement of business conditions generally, and his own business in particular. This bulletin has been prepared with a view to aiding the campaign of education by explaining what a cost system is, how it operates, the results obtained, and the benefits to be derived from its operation."

OBJECTIONS TO INSTALLING COST SYSTEMS

Quoting still further from the above-mentioned Government booklet, "There are a number of objections in the minds of business men who have not installed cost systems, to taking up the matter. One of these is the feeling that exists in the minds of so many that their business is unique and different from any other, and that no system could be devised which would give them true costs. It is unquestionably true that some lines of manufacture lend themselves more readily to the installation of a cost system than others, but it is also true that no line of manufacture is so complicated that a system cannot be devised which will give reasonably accurate results.

"The most common objection which is made is that of the cost of installation and the expense of operation. Many manufacturers are of the opinion that a cost system means an interminable amount of detail and red tape and the assistance of a number of extra clerks. It is true, in many cases, that some extra labor may be required, but not to the extent the manufacturer fears. There is, in nearly every office that is not systematized, sufficient unnecessary work done to cut the extra work down to a minimum, and, in fact, in some cases, where an office has been systematized, it has not been necessary to employ any extra help at all. If the manufacturer will look upon a cost system as an investment, which he expects to produce for him a fair return in the same manner that an investment in improved machinery would, the objection as to the expense is not a valid one. Another objection which has been brought forth in the past is that many manufacturers dislike to give out information concerning their business. Today the reverse is the case. Trade associations are compiling statistics as to production, shipments, and costs for the benefit of their members, and the manufacturer instead of trying to keep this information to himself, welcomes the opportunity to supply the data, knowing that his competitors are doing the same thing and that these statistics will be of benefit to himself and to his industry. The Federal Trade Commission is keenly alive to the value of this information.

"The Commission is urging manufacturers to determine their costs accurately in the interest of better trade conditions. It believes that anything that is of benefit to an industry is of benefit to the public, and it is also of the opinion that the nearer cost systems approach uniformity, the more valuable will be the results."

The foregoing quotations from the publication issued by the Federal Trade Commission indicate that many other businesses today face the problem which we architects have to solve. In attempting to review this booklet, and to apply the methods of cost finding therein stated to the practice of the business of the architect, the first step is to:

INSTALL A TIME CARD SYSTEM

Before the architect's production costs can be properly determined, a time card system must be installed where the hours of each draftsman are charged to a particular operation and individual job showing the actual amount and cost of this time. When these figures are available, the next step is to determine how much overhead to add to these Drafting Costs in order to get the architect's actual or prime production cost. In determining the labor costs, there are

TWO LABOR CLASSIFICATIONS NECESSARY

The labor of making drawings and specifications can be divided into two classifications, namely, direct labor or productive labor, as it is sometimes called, and indirect, or non-productive labor. Direct labor or draftsman's salary is that which is charged directly to a specific job. Indirect labor is that which cannot be located as belonging to any particular job, but must

be charged to the general expense or overhead. For the sake of uniformity, the architect's time should be charged in the following manner:

If, for example, the architect actually puts in his time as a draftsman working over the drawing board, then it would be proper to charge this time to the drafting costs at the approximate rate he would pay a good draftsman capable of doing this particular work. As the business of the architect increases, it is well to remember his time is more and more taken up with purely administrative duties. In this case, it is practically impossible to allocate the architect's time to the various jobs and so it is much easier to charge his salary to general overhead. Now, we are going to quote again from the aforementioned booklet of the Federal Trade Commission:

"Having now provided for the recording of the overhead expense, it becomes necessary to provide for charging into the different jobs. There are several methods of doing this. The first is by—

"THE PRODUCTIVE HOUR METHOD OF ADDING OVERHEAD

"A method which is recognized by the majority of manufacturers and accountants as the standard, is what is known as the 'Productive Hour Method.' In a plant where practically all the labor is hand labor, the man-hour is the basis, and the total hours divided into the total overhead expense at a rate per hour multiplied by the hours spent on a job is the overhead chargeable to that job."

As an example of how the Productive Hour Method would be applied, let us assume that the overhead in an architect's office was $1,200 a month and for easy figuring, there were enough draftsmen employed that month to make 600 man-hours of expense, or a total of 600 hours of time put in by all of the draftsmen for that month. $1,200 divided by 600 hours would obviously be $2.00 an hour, which would be the method of distributing the overhead of the Productive Hour Method. If a particular job had 100 hours of time devoted to it during that month, then multiplying this by $2.00 an hour, the overhead chargeable to that job would be $200.00. At this particular point, it is essential to sound a warning. The work in an architect's office is highly seasonal. There are slack times when no draftsmen are employed, and yet the overhead goes on just the same, and in using the Productive Hour Method, the architect should work out a way of raising the burden of expense per hour sufficient to take care of these slack periods. Here is the great leak—few architects understand or recognize this factor and this is one of the reasons why few ever experience real prosperity.

As to what this increase should be remains still a matter of speculation and it should be further investigated and determined by the various architectural associations in order to find out what would be a fair amount to raise the monthly overhead to take care of this particular element.

The following is another method advocated by the accountants of the Architects' League of Hollywood.

METHOD OF ADDING OVERHEAD BY THE ONE PLUS TWO RULE

It has been found that a fairly definite relation exists between the drafting room salary and the overhead. This has led to the adoption of the 1 PLUS 2 RULE which is stated as follows:

Add to the drafting room salary twice its amount and the result will be the cost of production. As an example: Assuming the drafting room salary was $100.00; add to this $200.00 for overhead and the cost of production would be $300.00. This is a quick and easy rule and if you will turn to Table No. 2 you will see that it is justified by facts. For instance, Item No. 1 in that table is 29.62%. Multiply this by 2 and you have 59.24% for overhead. Add this to the 29.62%, drafting room salary, and you then have 88.86%, the total cost of production. Compare this with Item No. 5, Table No. 3 (to be published in the June PENCIL POINTS), and you will find that the actual cost taken over a number of years and many jobs, was 89.72%.

From this you can see that the 1 plus 2 rule is a very simple and accurate method of ascertaining your production cost.

The above-mentioned architectural business was an average one both as to size and as to the type of work, some residence work, some churches and some smaller commercial work. In studying this table, if the work of the architect's office was largely commercial the actual ratio between the drafting cost would be unquestionably less. Even in this case don't lose sight of the factor of seasonal variation.

If you have a double entry bookkeeping system (as you should have) and you have a profit and loss statement prepared at periodic intervals, then this profit and loss statement will show whether you are doing enough business to pay for your overhead. By using the 1 plus 2 rule in figuring your overhead, you will always *have a definite standard of comparison* between the cost of one project and another, although they *may be years apart and under varying conditions* of busy and slack periods.

If your office is not particularly busy you will find that the 1 plus 2 rule will not add a sufficient amount to your overhead (based on your drafting room expense). In other words, if you only have one small bungalow job in the office during an entire year it would be illogical to charge all of your overhead against this one small bungalow. The job itself may have made a profit. In this case your loss would be due to the fact that you would not have done enough business to pay your overhead. This would be apparent in your profit and loss statement.

APPARENT DISCREPANCIES IN THE ONE PLUS TWO RULE

You will note that the overhead as indicated in the following tables, showing actual costs, does not always agree with the 1 plus 2 rule. The figures herein quoted are actual figures as submitted to the League by various architects. We did not attempt to revise them in any way but printed them actually as they were given to us. The reason for this discrepancy could unquestionably be explained by the fact that all architects do not figure their overhead the same way and they have not allowed for slack periods when Old Dragon Overhead had to be fed. There has been no standard method of cost finding yet evolved. In some cases, of which we are aware, the architect charges a part of his administrative salary into the drafting room salary for the purpose of apparently reducing his overhead.

Some architects made the rather naive explanation they did this in some cases where they had a contract with their client to pay the drafting plus the overhead, and plus a profit. This practice apparently reduced the item of overhead to which their client strenuously objected, and so the architect charged his salary up as a draftsman! It would rather seem that if this line of reasoning were generally adopted we would be in the position of the unhappy lady who used corn plasters rather than increase the size of her shoe.

One of the principal objects of this article is to point out the necessity for the establishment of a standard system of cost accounting for all architectural offices. The tables to be published in the June issue showing the actual cost of producing drawings for various types of buildings indicate a considerable variation in the relation of the cost of drafting to the overhead. Our correspondence with many architects shows the factor of seasonal variation has, in all probability, not been given proper consideration in these figures.

ALLOCATING OVERHEAD BY THE MARKUP SYSTEM

Another way of solving the problem of adding overhead to drafting costs is to consider that the drafting room time in dollars, is to the architect what the wholesale price of a piece of goods is to the merchant. The merchant takes the wholesale price of an article and multiplies it by his percentage markup and thus establishes his retail selling price. It is a very simple matter for the architect to apply this same method to his own business. He obtains the percentage markup in the following manner:

(SD) Drafting room salary.
(AS) Salary or drawing account of architect.
(O) Office Expense.
(P) Profit.
(MC) Percentage cost markup which does not include profit and shows actual cost only.
(MP) Percentage profit markup which includes cost plus net profit.

FORMULA (A)

FORMULA FOR OBTAINING MARKUP *INCLUDING PROFIT:*

$$\frac{SD + O + AS + P}{SD} = MP$$

FORMULA (B)

FORMULA FOR OBTAINING MARKUP SHOWING *ACTUAL COST ONLY:*

$$\frac{SD + O + AS}{SD} = MC$$

It is well to note carefully the distinction between the cost markup (MC), Formula B, which merely gives the cost of producing the work, and the profit markup (MP), of Formula A, which includes the cost plus the profit made by the architect.

EXAMPLES SHOWING HOW TO FIGURE THE PROFIT MARKUP OR MP

Let us assume that the drafting room salary is $800.00, the office expense is $866.00, and the architect's salary is $434.00, and the profit to the architect is to be $900.00.

SOLUTION OF THE PROBLEM

The drafting room salary of $800.00, plus the office expense of $866.00, plus the architect's salary of $434.00, plus the architect's profit of $900.00, equals $3,000.00. Divide this by $800.00, the drafting room salary, and the result is 375%, or MP, the profit markup.

EXAMPLE SHOWING HOW TO OBTAIN THE COST MARKUP OR MC

Assuming the drafting room salary to be $800.00, the office expense to be $866.00, and the architect's salary $434.00, the solution of the problem is as follows: Take the drafting room salary of $800.00, plus the office expense of $866.00, plus the architect's salary of $434.00, equals a total of $2,100.00. Divide this by the drafting room salary of $800.00, and the result equals 263%, MC, or the cost markup.

ILLUSTRATING THE USE OF THE PROFIT MARKUP

Assume the actual drafting room time to cost $100.00. At this point the work is stopped and the architect must determine how much to charge the client. The solution is as follows: $100.00 multiplied by 375% or the profit markup (MP) would equal $375.00, or the amount to be charged to pay production costs plus a profit. This (MP) will vary slightly from month to month. The architect should figure out these markups each month and also average them over a number of months or even years so

that he can judge more accurately what this percentage markup should be.

There is one thing the markup accomplishes. When taken over an average of a long period of months, or even of years, it takes into consideration the factors of good times and bad times, busy periods and slack periods, vacations and times of illness, accidents, etc., so that when the markup covers such lapses of time the business will have gone through practically every economic vicissitude, which will be taken care of in the average markups.

A MARKUP TAKEN FROM AN ACTUAL BUSINESS

In an actual architectural business, figured over a period of 37 months the (MC) equals 405.94%, and the (MP) equals 424.50%. Note this: When the (MP) is less than the (MC) the business is being run at a loss. This example includes a rush period, a very slack period, six weeks' vacation, and the luxury of a broken leg which put its proprietor on his back for two months in a hospital. The commissions charged were never below the minimum schedule as set by the Amercian Institute of Architects; in many cases they were higher by a considerable margin. The percentage markup is virtually an index figure in your business and should be determined at least once each month and WATCHED VERY CLOSELY. THESE MONTHLY (MC) AND (MP) CAN REALLY BE THE MOST IMPORTANT SINGLE FACTORS TO BE WATCHED IN YOUR ENTIRE BUSINESS. If they go above a certain point, you can be assured that the storm signals are out and that you are heading straight for the reefs of disaster. They can determine for you whether you have to cut down the expense of your overhead, or whether you have got to make a strenuous effort to get new business. The advantage of the markup system is that it enables you to quickly check your business in various ways. For example, here is

A FURTHER APPLICATION OF THE MARKUP SYSTEM

EXAMPLE: An architect has a $20,000.00 house. His commission is 7.0% for making the drawings (supervision not included). His (MP) for previous three years is 375%. He wants to know how much he can afford to put into the drafting room salary.

$$\frac{7.0\% \times \$20{,}000.00 \text{ (cost of house)}}{3.75 \text{ or } 375\%} \text{ equals } \$375.00$$

or the limit the architect can afford to expend in drafting room salary if he is to make his profit. If through efficient administration and watching closely the drafting expense on this job he could reduce this, obviously this would increase his net profit on this particular job.

One of the cost committee of the Architects' League of Hollywood has used the Markup System in allocating overhead for years and prefers it to all others. He finds it invaluable in checking his costs. It is quick and easy. This architect has his cost finding system so arranged that every month the bookkeeper hands him his (MP) and (MC) or markups for that current month and current year and also the markups taken over the preceding five years. It is priceless in value because the percentage tells the whole story at a glance.

ANOTHER EXAMPLE SHOWING USE OF MARKUPS

In case of a dwelling costing $100,000.00, the architect's total fee is 10%. He decides to allot 4% for supervision and 6% for the making of the plans and specifications. This 6% must include his profit on the plans and specifications. His bookkeeper informs him his Profit Markup or (MP) for 42 months is 400%. Now how much can he afford to pay in drafting room salaries?

SOLUTION

6% for plans and specifications multiplied by $100,000. (cost of house) equals $6,000.00. $6,000.00 equals 400%. Then 100% equals

$$\frac{\$6{,}000 \times 100\%}{400\%} \text{ equals } \$1{,}500$$

or the limit the architect can afford to pay in drafting salary on this job.

CARRYING THE BAROMETER OF YOUR BUSINESS IN YOUR COAT POCKET

As we have said (and would like to write in red) —to do a thing simply is to do it effectively. When we have reduced our cost finding system to pocket dimensions we truly have the right to feel that we have concentrated. The two following forms, giving a comprehensive resumé of our business can be carried in a pocket-size loose-leaf binder. These forms cover Cost and Profit Markups. Thus is the tale told—our business barometer is ever with us and so we can steer our course to avoid rough and dangerous economic waters.

Form No. 1 is merely a resumé of Table No. 1 in which the first column shows our monthly expense and as we have budgeted it. Column No. 2 gives the actual expense for the previous month; Column No. 3 is an average taken over a number of previous months. Thus we have an absolute comparison by which we can locate any of the leaks which may exist in our business.

Form No. 2 is really the most important one we can keep. It gives the two markups. At a glance one knows whether one's business is making or losing money. We can have one of our draftsmen rule and letter these forms on tracing linen and from these have a few brown line prints made—we are then in a position to twist the tail of Old Dragon Overhead until the tough old monster bellows for mercy.

COMPILED ·			PAGE 1			
OVERHEAD EXPENSE FROM TO			BUDGET	FOR MONTH	MONTHS AVERAGE	TOTAL FOR MONTH
	1	· RENT ·				
	2	· JANITOR · SERVICE ·				
	3	· HEAT · AND · LIGHT ·				
	4	· TELEPHONE ·				
	5	· TELEGRAMS · AND · LONG · DISTANCE · CALLS				
	6	· STENOGRAPHER ·				
	7	· DEPRECIATION · OF · OFFICE · EQUIPMENT ·				
	8	· INSURANCE · FIRE				
	9	· INSURANCE · LIABILITY ·				
	10	· INSURANCE · ACCIDENT ·				
	11	· TAXES ·				
	12	· INTEREST · ON · CAPITAL · IN · OFFICE · EQUIP.				
	13	· AUTO MILES @ CENTS PER MI.				
	14	· ARCHITECT'S · SALARY				
	15					
	16	· TOTAL · FIXED · CHARGES ·				
			COL. 1	COL. 2	COL. 3	COL. 4

FORM NO. 1—FIRST PAGE—SEE TEXT

· COMPILED ·			PAGE 2			
OVERHEAD · EXPENSE · FROM TO			BUDGET	FOR MONTH	MONTHS AVERAGE	TOTAL FOR MONTH
	17	· MAGAZINES ·				
	18	· DRINKING · WATER ·				
	19	· NEW · OFFICE · EQUIPMENT ·				
	20	· ARCHITECTURAL · BOOKS ·				
	21	· EXPRESS · CHARGES ·				
	22	· ADVERTISING ·				
	23	· BLUE PRINTING · STATIONERY · DR. MATERIALS				
	24	· PETTY · CASH · STAMPS ·				
	25	· CLUB · DUES ·				
	26	· PRINTING ·				
	27	· CHARITY ·				
	28	· PHOTOGRAPHS ·				
	29	· BAD · DEBTS ·				
	30	· NON-PRODUCTIVE · SKETCHES ·				
	31	· MISCELLANEOUS ·				
	33					
	34					
	35	· GRAND · TOTAL ·				

FORM NO. 1—SECOND PAGE—SEE TEXT

FORMS FOR POCKET LOOSE-LEAF BINDER

| · OFFICE · | | |

If Item No. 3 runs above 60% it is a sure indication of danger, and does not indicate a healthy condition of the business. For instance, if an architect makes a reasonably complete set of plans, and Item No. 3 runs over 60% of gross collections or the (MC) equals 300% or more, it is a sure indication of DANGER and of some of the following difficulties:

a. The architect is not getting enough for his services.
b. His office expenses may be too high.
c. Time may be wasted in the drafting room due to the high cost of conversation or cigarette smoking. The draftsmen's time may be spent in settling various world problems of vital importance on the boss's time. There are other various and sundry time-wasting activities in which many draftsmen are adepts which help feed the Dragon.
d. The plans are not being completed in the office in a reasonable time.
e. The office is not getting enough business in proportion to the overhead.

We wish this item D could be written in red ink in this article. A set of plans should always receive a sufficient amount of study to produce first class results, but if this can be accomplished in one month do not let it run into two months. The clock is ticking off your overhead at 12 cents a minute, or $7.00 per hour, and every unnecessary hour that set of plans remains in your office takes just that much from your elusive and shrinking profit. Think it over!

And now let us again glance over Item No. 3. If this runs 60% of the architect's gross collection, then most architects jump to the conclusion that their profit is 40%. Of course, they have neglected to figure in Item No. 4, or the architect's salary. In reality their net profit was only in the neighborhood of 10%. Very few people know the correct formula for getting a given percentage of profit. This method is given later in this article.

WHAT SHOULD AN ARCHITECT'S PROFIT BE?

There is no question but what the above condition of affairs exists in the majority of the architects' offices in America where profit is a myth and where a well paid draftsman is making more money than the boss. The firms of cost accountants, employed by the Architects' League of Hollywood, make the statement that considering the business risks and the expense of preparation and training of the architect, this profit should be in the neighborhood of 30% net. A profit of this sort is impossible for an architect to obtain under the accepted minimum schedule of architectural fees as set by The American Institute of Architects. It would appear that the net profit of the architect should be higher than in the ordinary business because the vocation of the architect is largely one of personal service. The average client employs an architect because of his confidence in this individual architect's artistic, technical, and business ability. He therefore expects to have a personal contact with that architect and he is not satisfied if he is turned over to a paid draftsman. This naturally tends to lessen the volume of business the architect can do and still satisfy his clients.

In the second part of this article, which will be published next month, there will be included tables based on the returns from the Hollywood questionnaire showing the actual costs of producing plans and specifications for different types of buildings as recorded by architects in all parts of the country. The types of buildings covered include: residences under $10,000; *residences,* $10,000 *to* $20,000; *residences,* $20,000 *to* $40,000; *residences,* $40,000 *to* $100,000; *residences over* $100,000; *apartment houses; hotels; schools under* $50,000; *schools,* $50,000 *to* $100,000; *schools,* $100,000 *to* $300,000; *schools over* $300,000; *churches under* $50,000; *churches,* $50,000 *to* $100,000; *churches over* $100,000; *office buildings; store buildings; bank buildings; clubs; warehouses; gymnasiums; and hospitals. Drafting room costs, overhead costs, and total costs are shown, both for the individual job and for the average of all jobs considered and the (MC) or cost markup for each class is also given. This information cannot fail to be of extreme value to all architects and to all draftsmen who hope to become architects.*

FROM A LITHOGRAPH BY EDWARD M. SCHIWETZ

PRESBYTERIAN CHURCH AT 37TH STREET AND 5TH AVENUE, NEW YORK

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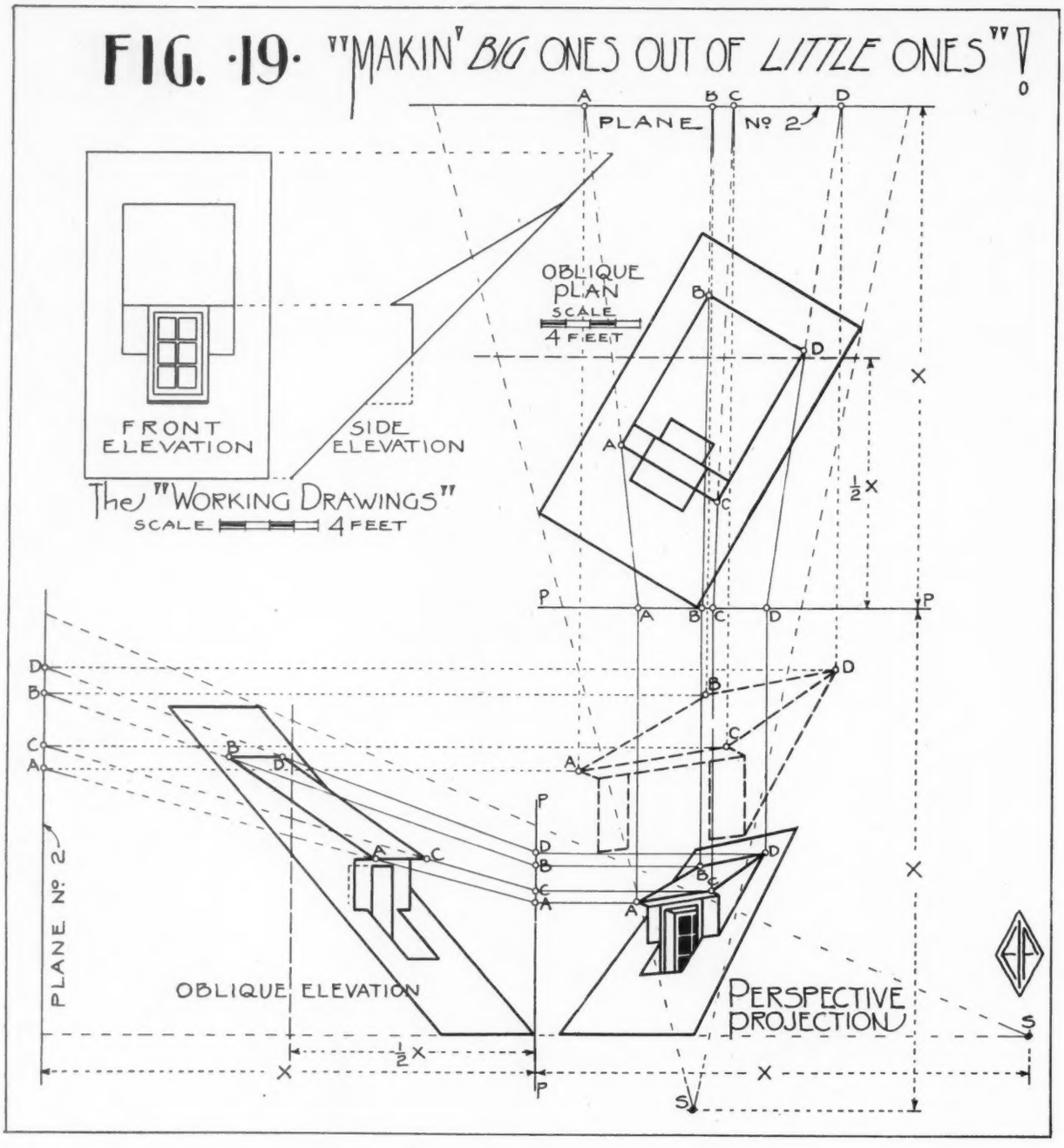


FIGURE 19—PERSPECTIVE PROJECTION—SEE ARTICLE OPPOSITE

PERSPECTIVE PROJECTION

A SIMPLE AND EXACT METHOD OF MAKING PERSPECTIVE DRAWINGS

By Ernest Irving Freese

PART IV

EDITOR'S NOTE:—*With this installment the author resumes the exposition of his method of making perspective drawings, continuing the discussion already presented in the January, February, and March issues of* PENCIL POINTS. *Both text and illustrations are copyrighted in the author's name.*

ONE of the numerous practical advantages of Perspective Projection, over other systems of perspective, is the facility with which either enlargements or reductions of the perspective image can be made from the same plan. This is clearly shown in Figures 19 and 20, requiring but meager description to the draftsman who is familiar with the "projective" method fully set forth in Parts I and II.

In studying Figure 19, note that the projected lines of sight, or visual rays, instead of stopping at the normal picture planes *PP*, in both plan and elevation are continued to another parallel plane, designated on the drawing herewith as Plane No. 2, and that this additional plane, in this particular instance, occurs at a distance back from the normal plane equal to the distance *x* of the normal plane from the station point *S*.

Now, because Plane No. 2 is twice as far from *S* as the normal plane is, it follows, from the properties of similar triangles, that the projected distance *AD* on Plane No. 2, will be *twice* as great as the corresponding distance projected on the normal plane *PP*. Consequently the distance between any other two points on Plane No. 2 will be increased in like proportion. Wherefor, by projecting the perspective from Plane No. 2, instead of from the normal plane *PP*, a perfectly natural but startling thing occurs:—the image of another dormer, exactly twice the size in every linear dimension, emerges from the sky above the original one, as indicated by the dotted lines in the projected perspective.

The entire "process" of perspective enlargement has now been fully explained and exemplified! Your perspective projection can be any size you like regardless of the "scale" of the drawings you are working from. It is obvious that if you projected the image from the plane shown dotted in the Figure, which is fixed midway between the other two, then the resultant projection would be enlarged 1½ times instead of 2. Etc., Etc.

Now inspect Figure 20. At "A" is a square pyramid projected from Plane No. 1, the normal picture plane. The sight lines are all prolonged to Plane No. 2, and between 1 and 2 are other planes whose projections therefrom will become enlarged in accordance with the numbers they bear. Cut apart the plan and elevation and arrange them on the board as indicated at "B," keeping the projection planes 90 degrees apart, as shown. Project the perspective from Plane 2, and it yields an image twice the size of the original. Then arrange the plan and elevation as at "C," with the normally vertical plane tilted at 30 degrees to the horizontal, and with the normally horizontal plane at 90 degrees to the other. Project the image, with T-square and triangle, from the inclined positions of Plane No. 1, and a perspective reduction half the size of the original is the result. Any other reduction can be made simply by varying the inclination of the projection planes and remembering to place them *90 degrees apart.*

The possibilities of this system are limitless. Huge perspectives can be made on a moderate-size drafting board from the small ¼″ or ⅛″ scale working drawings, or small projections can be made from the larger scale details. And, by filing away the diagrams from which the perspectives were projected, they become available at any time for projecting a duplicate of any desired size.

A simple and satisfactory empirical construction for projecting the outline of any hemi-spherical dome into perspective, from any given point of sight, is given in Figure 21. Proceed as follows: Locate the points of tangency *AB*, in plan, either directly by contact, or in accordance with the exact method illustrated at Figure 6 in Part II. Bisect that portion of the picture plane, in plan, occurring between the limiting tangent rays, as shown. From the point of bisection project a visual ray into contact with the plan at point *C*. Transfer *A*, *B* and *C* to the spring line, or base in this instance, of the dome in side elevation. Now project the chord *AB* and the point *C* into perspective. Draw a vertical through *C*, prolonged in each direction. Now, with dividers at *e*, make $ef = eB$, $eg = eB$, and $eh = eC$. Then the perspective lines *AB* and *fg*, crossing at *e*, are conjugate diameters of the visual ellipse forming the contour of a complete sphere, of which the dome is the upper half. And the lines *AB* and *Ch*, coincident with the others, are the conjugate diameters of the visual ellipse forming the base of the dome.

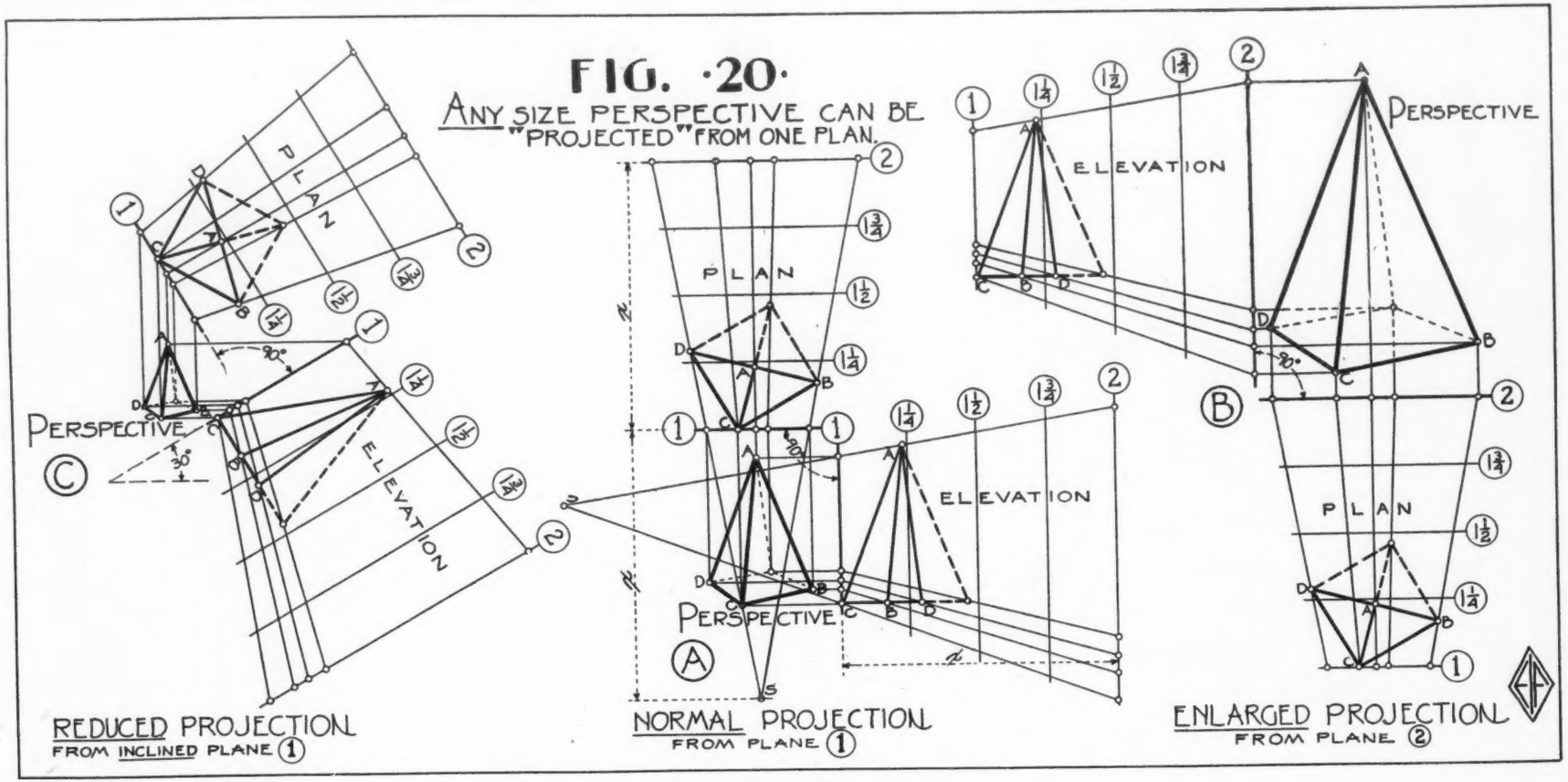


FIGURE 20—PERSPECTIVE PROJECTION

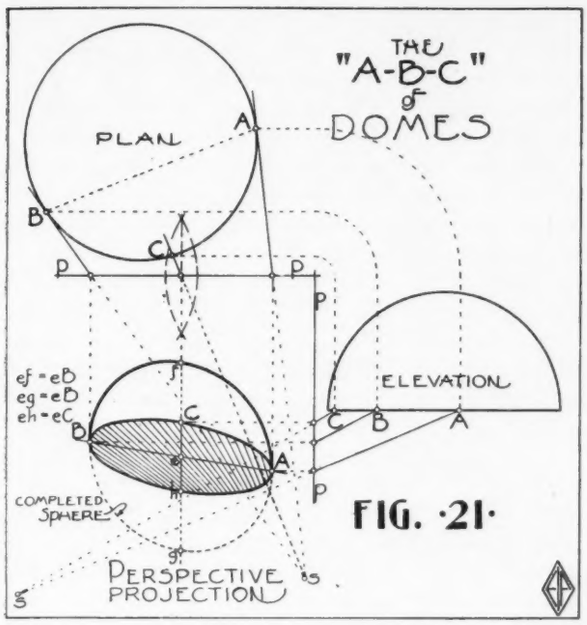


FIGURE 21—PERSPECTIVE PROJECTION

Hence, with the conjugate diameters fixed in position and magnitude, the elliptical contours of both the dome and its base can be drawn with a trammel as shown in Part II at Figure 8 or, if the size warrants, the axes may be found and the curves drawn with a string-and-pencil as has been fully shown in Part II, Figures 7 and 15. When the dome is directly opposite the position of the eye, that is, when the center line of sight makes an angle of 90 degrees with the picture plane, the outline of the dome in perspective will remain a true semi-circle, for, in that case, its conjugate diameters will have become at right angles to each other, one horizontal and the other vertical, and inasmuch as the ends of said diameters are equally distant from the crossing *e*, the outline can, in this one instance, be drawn with the compass with center at *e*. This is a case of "parallel perspective" which has been covered in Parts I and II, heretofore.

In Figure 22 is submitted an architectural example in perspective projection with which the draftsman should have little trouble if he has become familiar with the principles thus far advanced and illustrated. It is suggested that the draftsman work out this example himself to much larger scale. The complete method of procedure for working out any practical problem in architectural perspective projection, including a rapid method of blocking out an oblique elevation, will be given in Part V, but the example shown in Figure 22 is here given to enable the student to apply, to the best of his ability, the knowledge he has now acquired. For, in applying, or endeavoring to apply, his knowledge of perspective projection to the problem here presented, he will discover how much, if any, of the methods and principles thus far advanced he has failed to grasp.

Aside from the "front yard," or foreground, which here occurs in *front* of the picture plane, which situation has not been covered heretofore but which will presently be explained in detail, the example given in Figure 22 can be worked out solely from the information contained in Part I on "Straight-Line-Figures." For it requires no more understanding of the principles of perspective projection to picture an entire house than it does to locate one point in that picture. Once you have learned to "project" one point into perspective, you have learned it all! The variations and expedients will follow, as a matter of course, to aid in the practical application of the process, but the process itself remains exceedingly simple, being governed by but one rule to which there are no exceptions. And this one rule, briefly stated, is this: *To find the perspective of any point, intersect the picture plane with a visual ray from that point both in plan and elevation. Ordinates projected at right angles to the picture plane from said intersections therewith will meet in the perspective location of the point.* To illustrate: in Figure 22, herewith, a visual ray from the *plan* position of the near end of the main ridge at *R*, intersects the picture plane also at *R*. Similarly, a visual ray from the corresponding *elevation* position *R* intersects the picture plane in *R*, as is clearly shown by the arrows in the Figure. Now slide the T-square to *R*, on the vertical plane, and the triangle to *R* on the horizontal plane, and a dot at their intersection marks *R* in *perspective*. The vertical and horizontal dotted lines shown on the perspective are not necessary construction lines at all, but are shown merely to indicate some of the *positions of T-square and triangle* in "projecting" the perspective from the two coordinate positions of the picture plane.

The foreground of this picture, occurring forward of the picture plane, whereas all points heretofor have occurred at or behind same, makes no difference whatsoever in the method of projection. The ONE AND ONLY RULE still holds good: but in this case, in order to *intersect the picture plane*, the ray must be projected backward, or upward, instead of forward, or downward. That's all there is to it!

In projecting the foreground, first establish the main outline *abcd* of the "front yard," which is assumed here as level. Note that the foreground, the front yard just mentioned, appears in the oblique elevation merely as the ground line *ab*. Also note that corresponding points in plan, oblique elevation and perspective, bear the same letters. The process of projection can readily be traced by inspection. As an aid in locating foreground points, the imaginary line *ef*, in plan, is laid across the lot and projected into perspective, which is merely the process of projecting the ends of same and connecting them with a line where their vertical ordinates from the picture plane cut the lines *ab* and *cd*, clearly indicated in the Figure. The other points *g*, *h*, *j* and *k* are then

"brought down" from the plan to meet the perspective line *ef*, thus establishing the corners of the platform and two points in the curve of the walk. The points *l* and *m* are the tangent points of the walk and are located both in plan and oblique elevation, then projected into perspective from the points of intersection with the picture planes. Then by locating the perspective points defining the ends of the walk, a sufficient number of points in the curves are thus established through which the elliptical curves may be sketched freehand.

In the plan of Figure 22, the imaginary line *1-2*, connecting these two points of the gable eaves, is parallel with the picture plane, and the two points in question are at the same height in elevation. Wherefore, in the perspective, the same imaginary line will remain geometrically horizontal, and the T-square can be used to establish the equality of height of said points. This is another case illustrating the use of "picture-plane-lines" exploited in Part III, heretofore.

The student will note, I presume, that no windows are drawn on the oblique elevation, but as he becomes more familiar with the function that this elevation performs he will discover means of omitting many other things therefrom that are not vital to the projection of the perspective image. Now the sole function of this elevation is to fix the "heights" of required points for the one and only purpose of transmitting these points via visual rays to the vertical projection *PP* of the picture plane; for it is from the *picture plane*, only, in its two coordinate positions, that the eventual perspective is "projected." Hence, as a matter of fact, and of more or less surprise, this "elevation" *need not be drawn at all*, but the heights merely fixed by points and therefrom transmitted to the picture plane as the necessity for them arises. However, since all points must be finally located before the perspective is finished, it is more expedient to fix them all at once, and, having been thus fixed, it makes for clearness and, in the end, is a time-saver, to connect these points with "lines" that actually exist between them. This results in a "blocked out" geometric partial "elevation" projected on a plane at right-angles to the picture plane, being, in fact, nothing more nor less than an oblique *diagram* of only those lines that *appear* in the projected perspective. For lack of a more fitting name, I am forced to use the term "oblique elevation." Now, where two or more units of the same height repeat in any plane, then a "height-line" is substituted, in the oblique elevation, for the entire row of units—windows for instance. Such a "height-line" is indicated in the present example by the line *3-4* occurring both in the plan and in the oblique elevation. The ends of this line are projected into perspective, the line drawn, and the vertical lines of the windows occurring between points *3* and *4* are then brought down from the plan above.

In this example, the point *A*, on the right, is within convenient reach. Hence, it can be immediately located by prolonging, until they meet, any two lines running in a direction parallel with the right-hand side of the building, which side is seen to be greatly "foreshortened." This point, as has been shown in Part III, will lie on a horizontal line through S″, which latter point is at the eye-level. Then, as has been demonstrated in Part III, since the point *A* is available in this case, there remains no necessity for projecting the height of *both* ends of lines running in this direction, for it has been shown that the point *A* is a point common to all such lines, hence it is the ultimate "other end" of each such line. For instance, in the perspective projection of the height-line *3-4* just cited, there was no necessity for "projecting" the point *4*; the one point *3* would have been sufficient, for the aforesaid point *4* would be the point where *3A*, in the perspective, crosses the far vertical corner of the wall. In other words, the line *3A* takes the exact place and performs the same function as the line *3-4* previously found, therefore exactly coinciding with the latter as shown. Also, the side boundaries of the front yard might have been established by the lines *bA* and *cA* instead of by the lines *ba* and *cd*. In fact only one point in *any* line running in the same direction need be located in order to locate the required line, for, as has been said, the point *A* is another point in the prolongation of any such line and, with two points known, any straight line is established in *direction*, and it only remains to establish its required perspective *length* by dropping verticals from the picture plane above at the required points. It would be an interesting and profitable experiment for the draftsman to study carefully the oblique elevation with the avowed purpose in mind of seeing how much of it could have been omitted by virtue of the use of the point *A*. It is useless to apply the same research to the oblique plan, for not one unnecessary line will there be found; the use of *A* only expedites the fixation of perspective *heights*—not horizontal distances.

Now, before leaving this example, Figure 22, I shall indicate a few more practical applications of the perspective "geometry" contained in Part III. Assume the main front wall is of stone ashlar in blocks three feet long and a foot in height laid up in common bond. The method of showing this directly on the perspective, without recourse to plan or elevation, is indicated in the drawing. It could, of course, be gotten by straight "projection" in the way in which any other points or lines are projected. However, the direct method is usually faster and, therefore, the expedient will here be indulged in, not because it is particularly faster in *this* case, but to show the student how it may be applied to a more lengthy and complicated façade than is here shown. As a matter of fact, in actual practice, after the "significant lines" are once accurately established by "projection," then any other line, or lines, running in the same direction are gotten either by the still more direct process of inter-

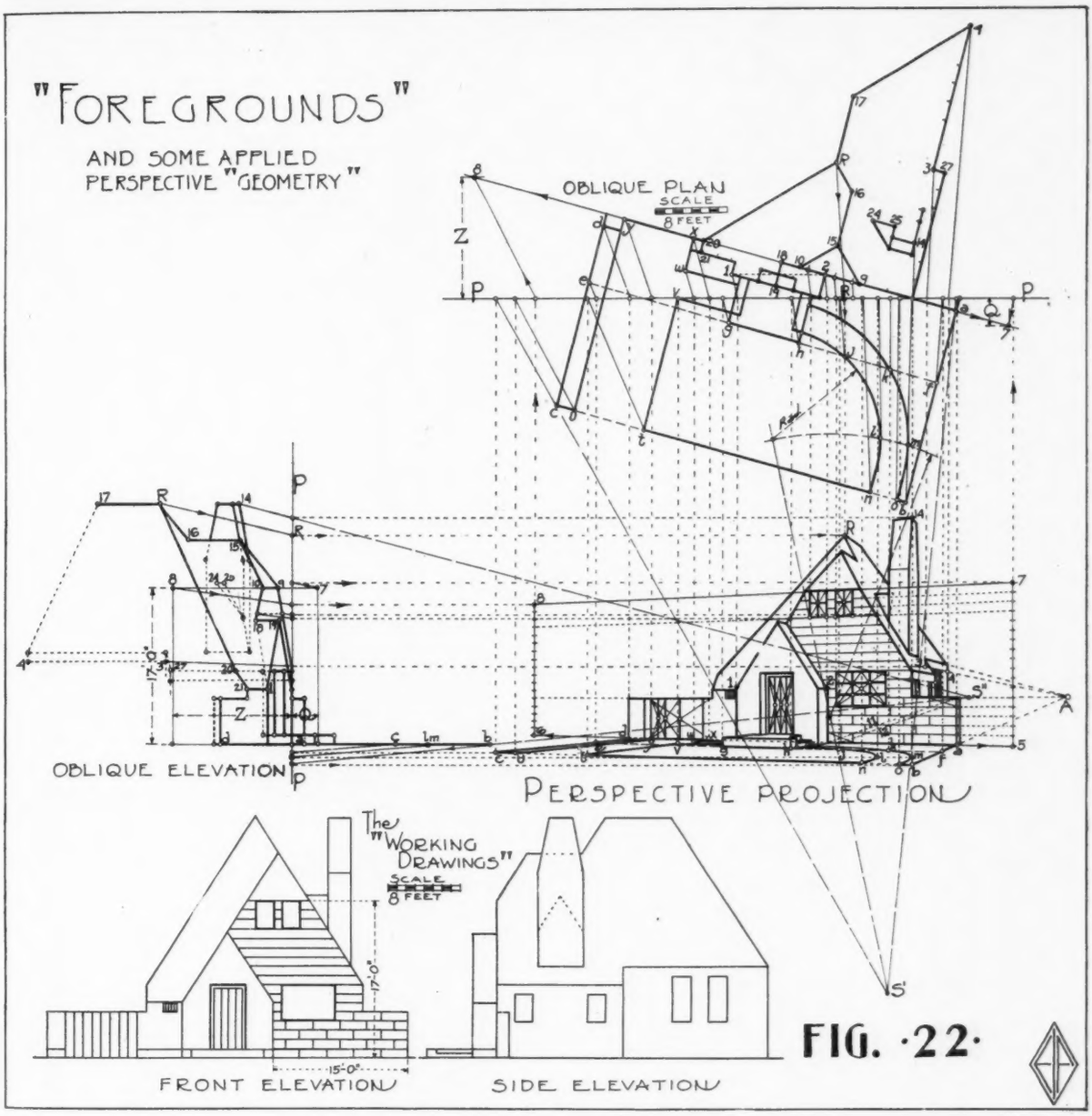


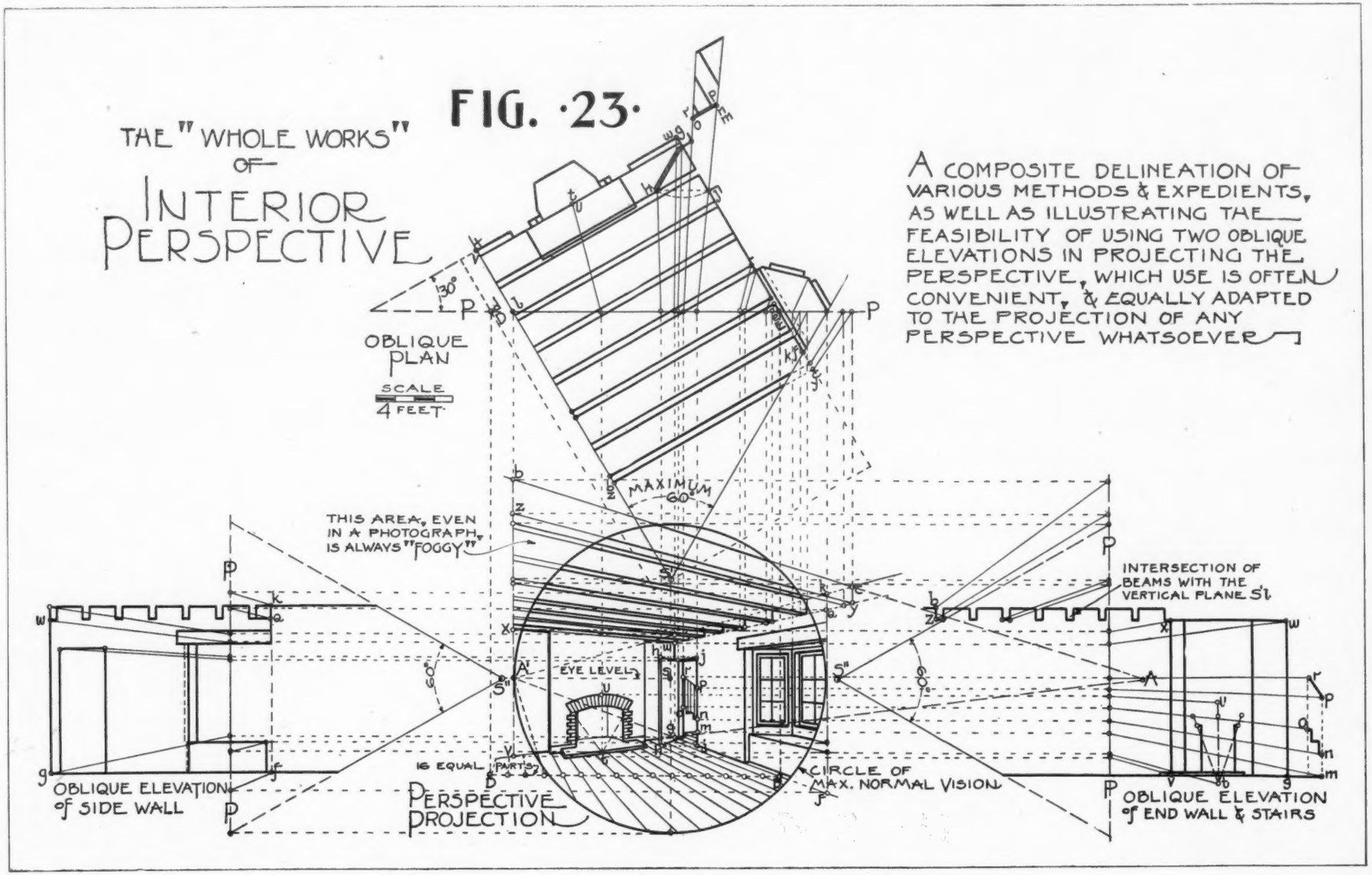
FIGURE 22—PERSPECTIVE PROJECTION

polation or, if point *A* is "on the board," which in this case would place it on the *left-hand* side, then, by establishing a convenient "height-line"—say the line *5-7*, or the near corner of the building, or what not—and with the T-square pivoting on a pin at point *A*, placing the lines in the perspective by "picking" their vertical location off the aforesaid "height-line." In the case here given, however, there exists only one long "significant" line running in the desired direction (the base line of the front of the building), and the left-hand point *A* is not only *not* "on the board," but is out of reach entirely. These "other ways" of doing one and the same thing are, however, mentioned here so that the draftsman can adopt whichever one appears to be the most practical and easiest to apply. By the method indicated in Figure 22, proceed in this manner: Prolong the base line *ay* in both directions so as to take the "construction lines" outside the area upon which the perspective is being projected, which establishes the line *5-6* and which, as it must be, is a boundary, or extension thereof, of the plane to be subdivided. The upper boundary of this plane is the eaves line of the truncated gable. But this line is too short to prolong it with exactitude and still maintain its true perspective direction. Hence, by a reversal of the process of perspective projection, establish another point in line with the gable eaves, which could be either the point *7*, vertically in line with *5*, or the

FIG. 23.

THE "WHOLE WORKS" OF INTERIOR PERSPECTIVE

A COMPOSITE DELINEATION OF VARIOUS METHODS & EXPEDIENTS, AS WELL AS ILLUSTRATING THE FEASIBILITY OF USING TWO OBLIQUE ELEVATIONS IN PROJECTING THE PERSPECTIVE, WHICH USE IS OFTEN CONVENIENT, & EQUALLY ADAPTED TO THE PROJECTION OF ANY PERSPECTIVE WHATSOEVER



PORTION OF FIGURE 23—WHOLE FIGURE SHOWN OPPOSITE AT REDUCED SCALE

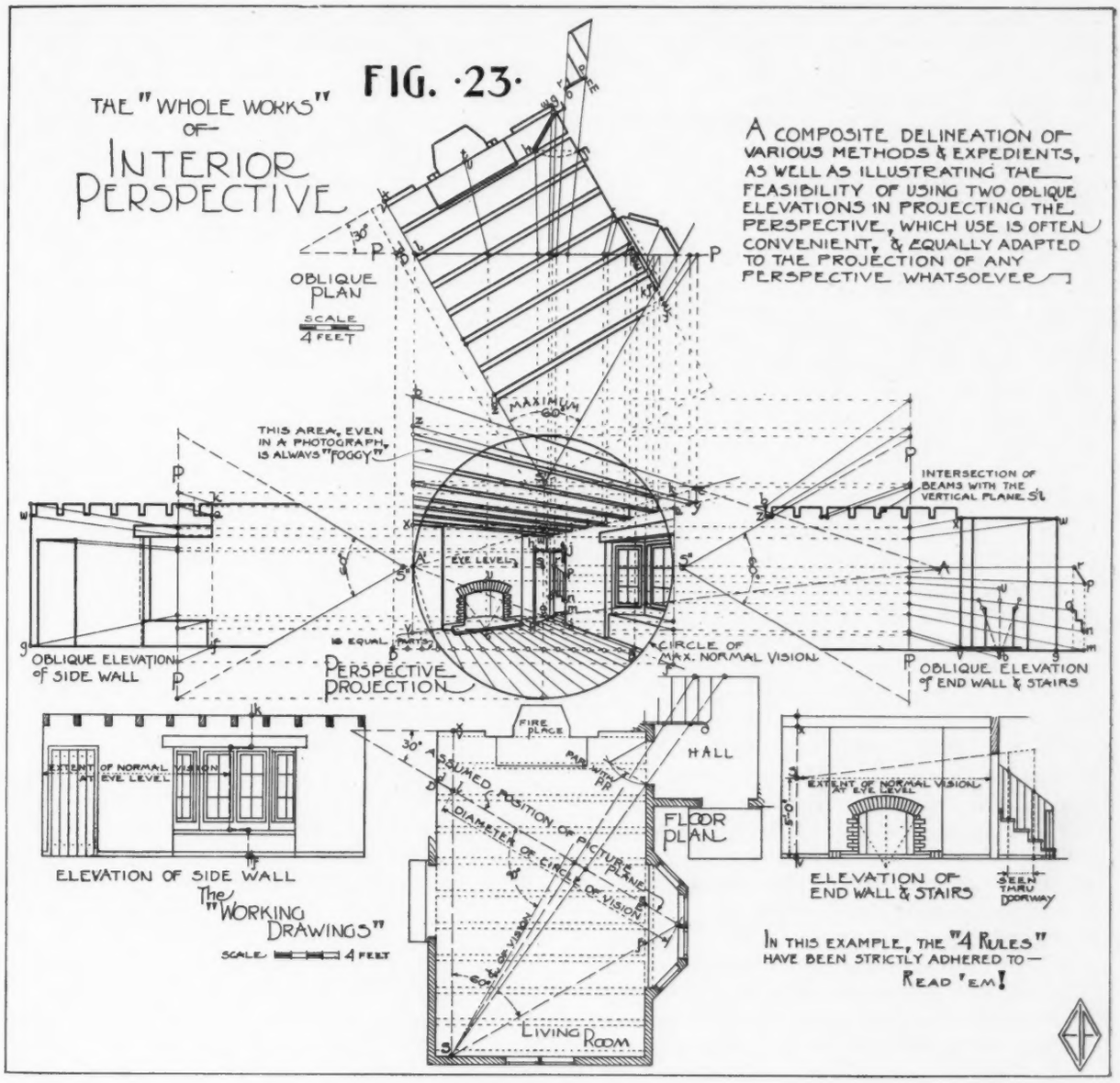


FIG. 23.
THE "WHOLE WORKS" OF INTERIOR PERSPECTIVE
A COMPOSITE DELINEATION OF VARIOUS METHODS & EXPEDIENTS, AS WELL AS ILLUSTRATING THE FEASIBILITY OF USING TWO OBLIQUE ELEVATIONS IN PROJECTING THE PERSPECTIVE, WHICH USE IS OFTEN CONVENIENT, & EQUALLY ADAPTED TO THE PROJECTION OF ANY PERSPECTIVE WHATSOEVER
OBLIQUE PLAN
SCALE 4 FEET
THIS AREA, EVEN IN A PHOTOGRAPH, IS ALWAYS "FOGGY"
INTERSECTION OF BEAMS WITH THE VERTICAL PLANE SL
EYE LEVEL
OBLIQUE ELEVATION of SIDE WALL
PERSPECTIVE PROJECTION
CIRCLE OF MAX. NORMAL VISION
OBLIQUE ELEVATION of END WALL & STAIRS
EXTENT OF NORMAL VISION AT EYE LEVEL
ELEVATION OF SIDE WALL
The "WORKING DRAWINGS"
SCALE 4 FEET
FIRE PLACE
HALL
ASSUMED POSITION OF PICTURE PLANE
DIAMETER OF CIRCLE OF VISION
FLOOR PLAN
LIVING ROOM
EXTENT OF NORMAL VISION AT EYE LEVEL
ELEVATION OF END WALL & STAIRS
SEEN THRU DOORWAY
IN THIS EXAMPLE, THE "4 RULES" HAVE BEEN STRICTLY ADHERED TO—
READ 'EM!

FIGURE 23—PERSPECTIVE PROJECTION—SEE DETAIL OPPOSITE

point *8*, vertically in line with *6*, the method of doing either being clearly indicated in this Figure by the nomenclature as well as by the direction of the arrows. It is a very simple process. And the line *7-8* is thereby established. Divide, by any convenient means, the verticals *5-7* and *6-8* each into seventeen equal parts, which, according to the "working drawings" is the number of stone courses occurring in the height of the wall. Lay a straight-edge between the corresponding division-points and draw the horizontal jointing, which will then be in true perspective, as shown. Now, again consulting the "working drawings," it is seen that this wall, at the ground line, is fifteen feet long, hence contains five blocks of stone. Wherefore, draw the diagonal *11* across the rectangular area on the perspective that is five stone high and five long, and the ensuing intersections with the *horizontal* jointing will give the *vertical* jointing of alternating courses. Then cross the diagonals of the diagonally-opposite corner blocks to find the vertical center line of each. Draw the diagonal *12* between the center points of either the upper or lower edge of these two blocks, and the resultant intersections with the horizontal jointing will establish the vertical jointing of the *bond course*, as indicated. In some such manner, the jointing of the entire wall may be easily and accurately placed in true perspective. This, as well as the resubdivision of the windows, door and driveway gates, is a practical instance of the use of the "Magic Diagonal" exploited in Part III.

Now, in Figure 23, I have shown the "whole works" of interior perspective, literally and *figura-*

tively speaking! The "working drawings" will, ordinarily, be picked from the office files and, of course, form no part of the problem here presented: the "problem" is to make a perspective therefrom that will look "natural" and yet show enough of the room to make the effort worth while. In other words, the success of a perspective, particularly an *interior* one, depends entirely upon the "*point of view*"—of which more later.

For the present, let the draftsman follow *all* the instructions now to be given and, not only follow them, but follow them slowly and *thinkingly* to the letter. He will then learn more about perspective in general, and interior perspective in particular, than he will ever gain by mere *reading*. In other words, this problem requires a drafting board and its customary accessories—chief of which is the draftsman!

First: Enlarge the simple "working drawings" here given to ½" scale.

Second: Assuming the position of the station point *S*, and the position of the picture plane *PP*, given in the Figure, and, making use of two oblique elevations as shown, work out the perspective projection in accordance with the straight projective method fully covered in Parts I and II; that is to say, project the perspective without taking advantage of *any* of the expedients noted in Part III and herein.

Third: Make an entire new set of oblique elevations and oblique plan, omitting therefrom every point and line that was not made use of in projecting the first perspective. Then, from these, project a *second* entirely new perspective, this time taking advantage of *all* the expedients that can be practically applied. These expedients have been mentioned and illustrated heretofore.

Fourth: Make another entire new set of oblique elevations and oblique plan, omitting therefrom every point and line that was not made use of in projecting the first two perspectives. Then, from these exceedingly simple diagrams, project a *third* perspective and, when finished, rub out every line that was not used in the entire process, for you may have overlooked some in the previous attempts. Now, THIS THIRD DRAWING shows how it *could* have been done in the beginning. But, in the beginning, you hadn't learned HOW! Preserve this drawing. Ink it in. For it shows the minimum amount of work required in projecting the perspective from TWO oblique elevations which, possibly is not, in this case, the most economical of time. You shall see.

Fifth: Combine the two very simple oblique elevations into ONE, by reversing either and making their common line, *wg*, coincide and, using the last oblique plan which has by this time been reduced to nothing more than necessities, project a *fourth* perspective with the greatest economy of means at your command. When finished, if there is one line, construction or otherwise, occurring in the oblique elevation, the oblique plan, or the perspective projection, that was not used, or that it would have been unnecessary to use in order to achieve the quickest result, ERASE IT. Now, THIS FOURTH DRAWING SHOULD BE A MASTERPIECE. It represents the LEAST AMOUNT OF WORK that was necessary in projecting the perspective image from ONE oblique elevation which, in this case, was the way it *should* have been done in the beginning. Ink it in, and preserve this drawing!

All of the above drawings can be made on tracing paper, one above the other; thus the operation in itself will afford an exceedingly graphic demonstration of the old process of "elimination" which is the surest way ever discovered of learning almost anything! In this case, it should not prove tedious, for there is no great amount of work involved in making any one of the above four drawings. As a matter of fact, the original drawing of Figure 23 was made in its entirety by the straight projective process given in Parts I and II. And said process was neither painful nor prolonged. On the contrary it again demonstrates the absolute practicability of the "projective" method alone for any subject whatsoever, as will be shown in Part V where two exterior perspectives are projected by no other means.

As it finally appears here, the layout (Figure 23) is a complete composite presentation of more than one way of doing several things! At the risk of appearing involved, I have, in this case, not only given the entire process of projection by which the original drawing was laid out, but I have attempted to show, at the same time, various expedients that might have been used in that process. And I deliberately present it "as is" for the student or draftsman to "weed out" —not, however, without giving him a few "hunches."

Two oblique elevations are used, one for each wall, these elevations being projected on a plane *at right angles to the picture plane*. This use of *two* elevations is sometimes expeditious, especially in interior perspective where each wall bears much detail work. It is also useful in exterior perspective in case there are two equally important or complicated façades to project into perspective. In this simple interior, however, it is a doubtful expedient, but is shown more to acquaint the draftsman still further with the "flexibility" of the process of perspective projection. Also, as is the case in most interior work, the points *A* and *A'* are within easy working distance, one to the right and one to the left, readily found by the mere prolongation of any one perspective line of either system to where it meets the eye level. They can be made good use of. A horizontal "picture-plane-line" *DE* has been taken advantage of to get the flooring into perspective. Another use of a similar line is seen in connection with opened doorway. The manner of projecting the fireplace arch into perspective is an expedient. Again, there was no necessity of drawing

the ceiling beams in either of the oblique elevations nor in the oblique plan. In the plan they could have been simply marked at the side wall line only. The necessity of them being shown in the oblique side elevation never did exist, and the necessity of them occurring in the other oblique elevation is done away with by the expeditious location of point *A*. Finally, there was no need of "drawing" any of the lines shown dotted in the Figure. They are "positions" merely, of T-square and triangle in projecting the perspective. . . . . Well, as I say, the draftsman will find that the "weeding out" process which I have recommended, and then came near carrying out!, will render this "problem" exceedingly simple and valuable.

And now, at the close of the subject of interior perspective, allow me to put into *rules*, some sound advice as to the location of the station-point, (which is the "point of view" heretofore referred to) and in regard to other pertinent matters having to do with the subject at hand. Wherefore, the "four rules" follow.

RULE 1:

Never remove the wall of a building to get a view of the interior.

That's a house-mover's job—not a draftsman's! Yet I have known draftsmen to lay out the two sides of a room, in plan, preparatory to the making of a perspective therefrom, and then, forgetting or ignoring the fact that there were two *other* sides to the same room, assume the point of view out in the front yard somewhere or, just as likely, across the street on the opposite sidewalk. The purpose of perspective delineation is to represent objects as they appear to the *eye*. If a truthful interior perspective is to be the result, then the *eye* should be in the *room*. Any other assumed position renders the perspective a "fake." There are plenty of them! And right here it can safely be set down that if a perspective of a room, from a station point within the room, doesn't "look right," then most assuredly the matter of *architectural design*, or *re*-design, should be looked into instead of "blaming it on the point of view." It is, of course, entirely within reason, to make perspectives from the viewpoint of another room, *provided* the extent of the picture is limited by the door opening or arch through which it is to be seen.

RULE 2:

Limit the angle of vision to 60 degrees.

That is to say, keep the extent of your perspective within the limits of normal *human* vision if you would have it appear "natural." Startling and dramatic effects are often produced otherwise, but they have no counterpart in the human eye—*they are not seen that way*. The camera can do it—with a "wide angle lens"—but not the eye.

RULE 3:

Keep the center of vision close to the center of the picture.

This, again, makes things look more natural for, actually, if part of a view is much "off center" of the direct line of vision, the eye unconsciously "shifts a little." But if the station point in a perspective "shifts a little"—that's *another* picture, from *another* viewpoint. Hence, in interior work especially, center the interest on some one item and make this the approximate center of the picture, thus taking advantage of the full maximum range of vision and still producing a truthful picture.

RULE 4:

Never "square up," or enclose in a square, an interior perspective that encompasses the full visual angle of 60 degrees.

Rays of sight from the eye form a *cone, not a square pyramid!* Hence, the diameter of the *circle* limiting the perspective is equal to the length of the picture plane between the points where the limiting rays from the eye cut it. Hence, the corners, or, in architectural parlance, the "spandrels," occurring between this circle and its circumscribed square would be outside the limits of normal human vision if the maximum angle of vision had been utilized. True enough, the eye may be conscious of objects in these corners but it does not "register" them clearly. Nor does the ordinary lens of the camera. In other words, they are "foggy." Therefore, in an interior view where the full range of normal human vision has been taken advantage of, as it must be to get a picture of worth-while extent, either vignette the corners, that is, "fade 'em," or cut down the size of the picture to avoid them. Imagine how overbearing the huge ends of the ceiling beams would appear in Figure 23 if they had not been "faded." This hugeness of size is not "distortion," as some draftsmen still assume: it is absolutely *correct* but *unnatural* perspective. The *eye* doesn't see things that way. That's all!

A study of Figure 23 will show that the above "four rules" have been rigidly adhered to, and yet, even in such a simple interior as this, a satisfactory result attained which, in a rendering, would become "artistic."

Part V, following and in conclusion, will be devoted to a convincing demonstration of the practicability of "perspective projection" as applied in actual architectural practice; in other words, the author's "drafting-room method" will be completed.

Part V of this valuable series will be presented in the July, 1929, issue of PENCIL POINTS.

FROM A SKETCH IN WATER COLOR BY WALLACE H. SMITH OF ST. LOUIS
"CHÂTEAU CONNINAIS, BRITTANY"—A FRESH AND DIRECT TREATMENT

OUTDOOR SKETCHING IN WATER COLOR

By Arthur L. Guptill

MAY IS HERE, and with May Outdoor Sketching comes into its own. So PENCIL POINTS has asked me to write an article on the subject, with particular reference to the use of water color.

Frankly I wonder if such an article will receive much serious attention. The man who is in the mood to go sketching is not in the mood to listen to dry dissertation. For Outdoor Sketching, to many of its enthusiastic adherents, is primarily recreational, being used as an excuse to get out-of-doors. It is a brother or sister or at least a first cousin to that pastime so ardently championed by the many followers of that doughty old English essayist and poet, Isaak Walton. And just as many fishermen care little whether they fish or not, preferring, often, a day of uninterrupted loafing with no fish to clean at its end, so many who profess interest in sketching have little concern over either the quantity or quality of their sketches. To these brethren of hook and line and of pencil and brush, the catch, whether piscatorial or pictorial, is far from being the essential thing.

Naturally, then, the advocate of sketching who views the subject in more or less this carefree spirit is not seeking advice as to the *how* or the *why* of it all. Given the desired leisure and a suitable day he simply puts himself in tune with Nature, following any whim that she, or fancy, dictates.

There really is, however, much besides recreation to be gained from outdoor sketching, particularly by the architect and his associates, so as some of you young fellows and a few of you serious-minded old-timers really seem to be seeking pointers on the subject, we have reproduced in this issue a number of outdoor sketches and offer these remarks to accompany them.

Before going on to the "What to Do and How to Do It" of the subject let us consider one or two of the advantages which the student may hope to derive from its serious pursuit. Even some of you carefree chaps should welcome these ideas as they might serve as excuses to offer your wives or mothers to prove that you are not going sketching Saturday afternoon merely for the fun of it, or in avoidance of those little odd jobs that have been laid out for you around the house, but because you hope to gain some tangible profit thereby.

Of the various advantages of outdoor sketching there are two which are outstanding. The first, and perhaps the most obvious, is that improved skill in delineation is bound to result from conscientiously repeated attempts to interpret subjects in nature pictorially in the limited time usually available. One can scarcely fail to acquire both speed and a fair degree of accuracy in the representation of such essentials as form, value, color, and texture. He will develop freedom and directness of expression far removed from the T-square and triangle "tightness" and indirectness which characterize the instrumentally drawn portions of the architect's work.

The second important advantage, less obvious, perhaps, though of even greater moment, is that as one learns to draw he also learns to "see"—not to see casually, but to observe analytically in a truly comprehending way—to see with the mind as well as with the eye.

To clarify this thought let me borrow a comparison from an author who points out that when a fellow takes his girl to a ball game they may both see exactly the same things taking place before their eyes, but if he knows the game and she does not, his understanding of what is happening will be far more complete than hers.

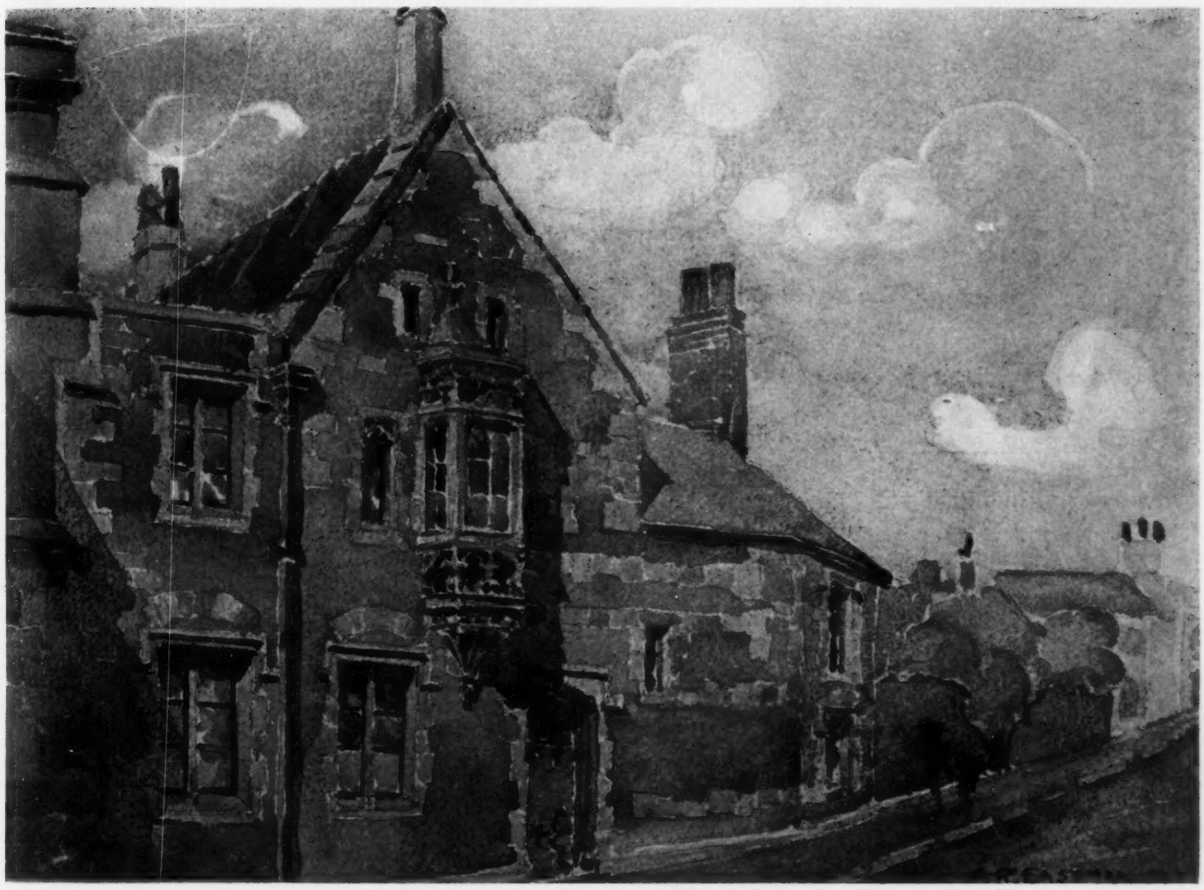
The main difference between the girl at the game and the beginner at sketching lies in the fact that whereas she would doubtless be willing to admit, at least to herself, her inability to "see" the game in the sense of comprehending it fully, nearly every student erroneously believes that he knows how to "see" places and things. Even the novice would claim ability to observe correctly, admitting merely his need of learning to sketch. Yet such a one would doubtless not only be unable to see things intelligently as they appear to the eye, but, to make matters worse, his memory would quite possibly be filled with many wrong impressions, previously gained. He might think of all trees and grass as green, for instance, (and of the most vivid hue, if one may judge from many early sketches!), and of all skies as blue and of clouds and snow as pure white. Any individual is under a great handicap until he can free himself from such preconceived notions and learn to judge each subject, in whole and in part, from an unbiased point of view.

Unfortunately it is not always the beginner who lacks power to see things as they truly appear. Even the architect of reputation is often astonishingly ignorant of the actual appearances of the very building materials which he is accustomed to employ. He holds in his hand a red brick and gets in his mind a definite impression of its hue. He then assumes that a building built of bricks like this sample will appear the same color. To a limited extent this is true, of course, yet a wall of such bricks might look orange in bright sunlight and purple or brown in shade or shadow, requiring the use of these hues, rather than red, for satisfactory pictorial representation. Such a wall would vary in appearance, too, according to its distance from the spectator, the perspective angle at

FROM A WATER COLOR SKETCH BY J. M. ARELLANO—CATHEDRAL OF NOTRE DAME, PARIS

A COMPLEX SUBJECT HAS HERE BEEN REDUCED TO ITS ESSENTIALS WITH PLEASING EFFECT

Size of original—12" x 9½"



GATE HOUSE, VICAR'S CLOSE, WELLS—WATER COLOR BY A. R. EASTMAN

DONE WHILE TRAVELING ON THE PLYM FELLOWSHIP OF THE UNIVERSITY OF ILLINOIS

Size of original—10¾" x 8"

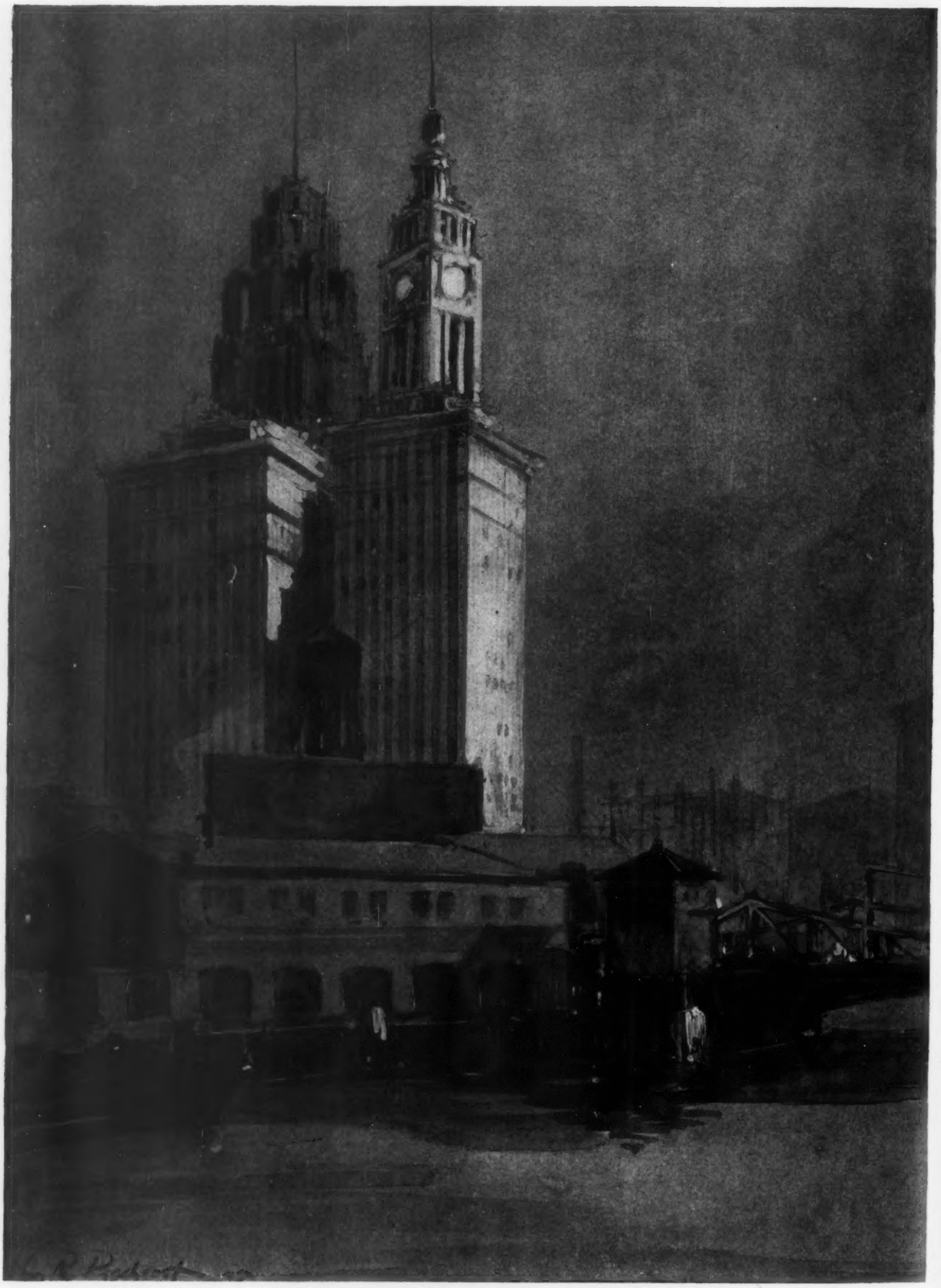
which seen, the character of the mortar joints, etc.

It is not only color which proves confusing to most individuals, for when we come to the examination of basic forms we likewise find that things actually appear very different from what we know them to be. A circle, for example, becomes an ellipse as usually viewed in perspective. Forms which are square or rectangular take on foreshortened proportions under like conditions, such bounding edges as are parallel and receding from the eye seeming to converge.

The architectural draftsman or designer is often under a particular handicap so far as this matter of understanding the true appearances of form is concerned, for his innate understanding has frequently been warped through his daily practice in drawing plans and elevations and sections and details all of which are in a sense artificial representations conventionally prepared with instruments and dealing with things as they exist rather than as they appear to the human eye.

Yet who has greater need of knowledge of true appearances, whether of form or of color than the architect and his assistants? Surely the designer of a building must understand how it will look when finally finished and viewed in intimate relationship to its surroundings. And if he does not fully comprehend the appearance of existing things how can he correctly visualize proposed structures? Yet, mainly because of our present system of architectural education and office practice, too many designers can make beautiful designs on paper, in plan, section and elevation, and too few can design good buildings. All too often designs studied wholly in plan and elevation are a surprise even to the designers when they take material form.

Outdoor Sketching, particularly in color, offers, through teaching one to see in the sense of understanding true appearances, one of the best cures for this inability to visualize. The designer who observes things closely out-of-doors, as one is forced to do through outdoor sketching, would, for instance, never make the frequent mistake of trying to camouflage poor general proportion into the semblance of good proportion through ornamental detail and the like, for he would fully realize that such detail, especially



SKETCH IN TRANSPARENT AND OPAQUE WATER COLOR BY LEON R. PESCHERET OF CHICAGO

WRIGLEY BUILDING AND TRIBUNE TOWER, CHICAGO

when viewed at night or in the distance, would rarely go far towards saving a building poor in mass.

If one accepts as a fact the contention that it really is worth while for him to learn to know how things appear in color, mass, light and shade, texture, etc., and if he believes that through outdoor sketching and the observation which accompanies it he may gain such knowledge, he is ready to consider the method of going about the thing.

Unfortunately, from the student's point of view, no one can teach him all these varying appearances. He must learn them for himself. He cannot do outdoor sketching or any form of representative drawing well until he does have a reasonable understanding of them, and, conversely, he probably can learn them only through drawing. He must simultaneously learn to observe and to draw.

The important thing—and this is why I have discussed the matter at such length—is that the man who goes forth to sketch out-of-doors should try to get the right point of view towards his problem. He should look at the world as a whole, and particularly that part of it which he has elected to sketch, as a strange curiosity never seen before, examining it in a critical, speculative sort of way. He must realize that good sketches are far more often the result of discriminating observation than of skill in delineation and so must analyze and compare, weighing the relative importance of this and that. If he starts with this point of view he is on the track which will lead him in the right direction. And so let me close this lengthy preamble.

Materials. So far as materials are concerned the important fact is for one to be sure, before starting out to sketch, that he has with him the few things which are really essential. It is not pleasant to get to the sketching ground only to find that the right brushes have been left behind or that some much needed pigment has been previously exhausted. One should check his whole list; he needs few materials but the few which he does need are needed badly, and they should be of the best.

Paper. It is extremely important to have good paper. Each artist has his personal predilections, so manufacturers have produced many papers, some rough, some smooth, some white, some tinted. On the whole the beginner will do well to start with medium rough white paper, experimenting with other surfaces as he gains increased skill.

There is perhaps no more popular paper for water color sketching than Whatman's. This is an English hand-made paper available in several thicknesses and various surfaces. Of these surfaces the *Hot-pressed* is rather smooth, the *Cold-pressed* somewhat rougher and splendid for all-round purposes, and the *Rough* is what the name implies. The *Cold-pressed* and the *Rough* are best for most outdoor uses. All these surfaces are obtainable in sheets of several sizes, the *Imperial*, approximately 22″ x 30″, being the most common. Such a sheet cut in halves gives a size, 15″ x 22″, large enough for all but the most ambitious work, while the quarter sheet, 11″ x 15″ will answer for simple subjects or for subjects drawn at small scale. Many prefer to buy these papers already mounted on a stiff backing which keeps them from buckling when the washes are applied. One simply asks for "Whatman's mounted," giving the size. There are other excellent mounted boards, too, though the so-called "Illustration" boards are for the most part inferior, especially if many corrections prove necessary.

If one buys Whatman's or similar paper in sheet form he will find it advisable to mount it himself, or "stretch" a sheet when needed by glueing its edges to a drawing board while the paper is thoroughly wet, allowing it to shrink smooth as it dries. Some such papers are obtainable, too, made up into pads or sketch blocks. In this form, however, the paper may buckle when wet, necessitating annoying waits while it dries or forcing one to work over wrinkled surfaces.

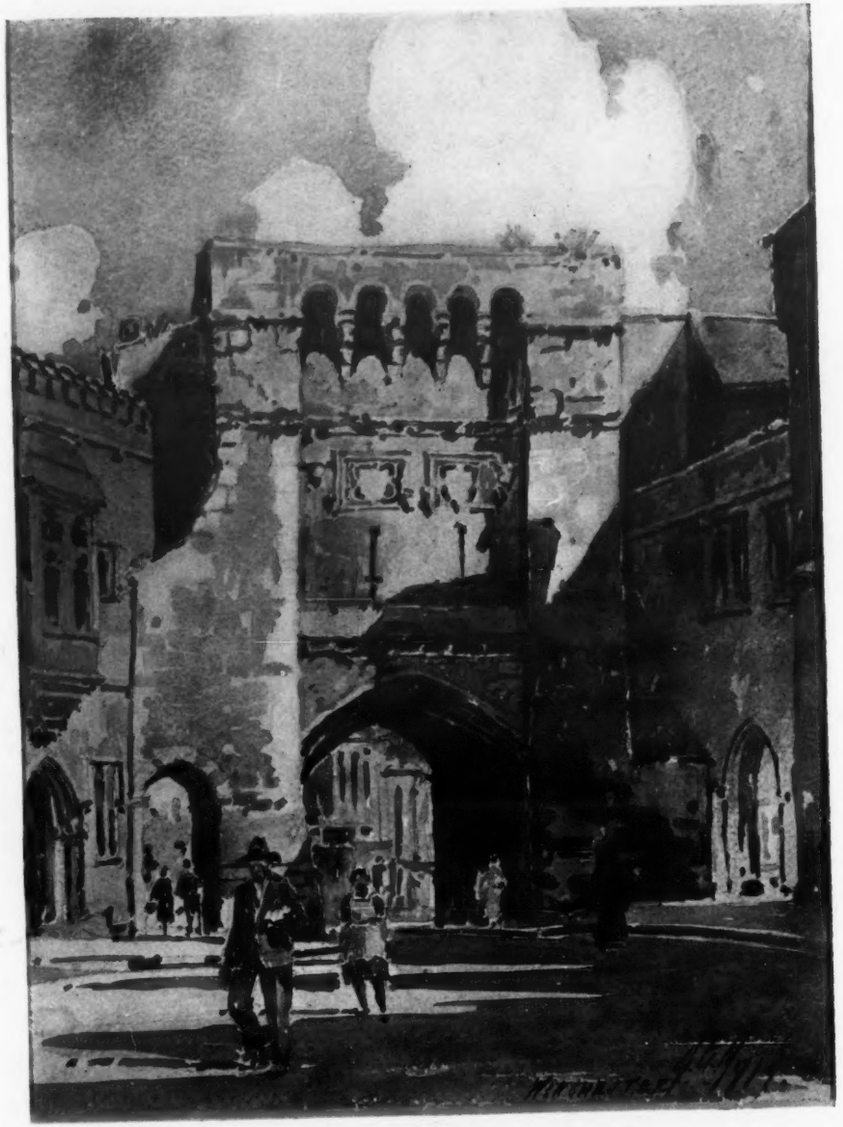
Brushes. One needs but few brushes (sometimes one is enough) but these few should be of excellent quality. Red sable brushes are particularly to be recommended; they are far from inexpensive but if not abused will last a long time. In buying brushes one should test each one in water to make sure that it will take and hold a good point.

Beginners often use too small brushes. As a rule one should employ the largest size which will serve his purpose. This will make for breadth of effect and conserve time and energy. A large brush holds sufficient paint to last awhile, acting in this respect much like a fountain pen. Different manufacturers vary their method of grading as to size but in Winsor & Newton's list a No. 8 or No. 9 is good for all work but the finest detail, for which a No. 5 or No. 6 may be needed. If a drawing is unusually large or if washes covering large surfaces are to be run quickly a No. 12 or even larger is better, and sometimes a tiny brush, No. 1 or No. 2 is handy.

We have in mind, above, the typical pointed brushes customarily employed. For some purposes, however, especially where a rather decorative effect of the brush strokes themselves is sought, brushes worn blunt by previous use or made with thin, flat points are often just the thing. The beginner, however, is seldom concerned with unusual effects or conditions.

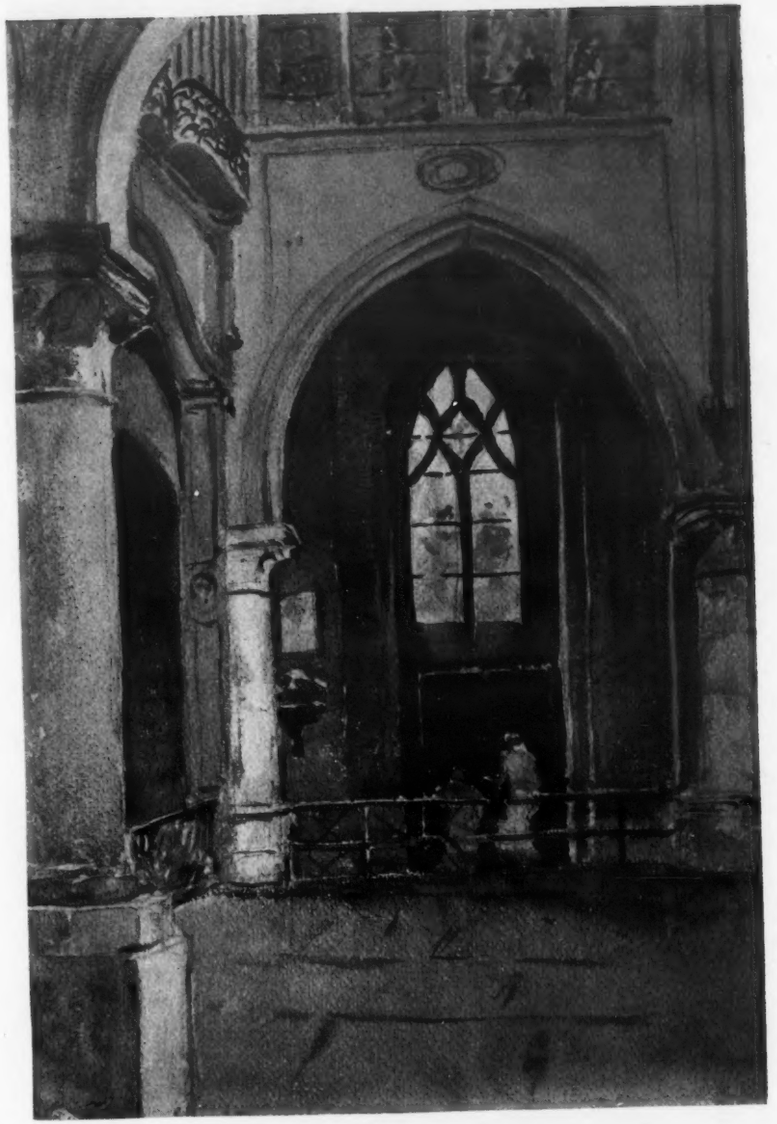
Pigments. For most outdoor sketching, especially as done by architects, the so-called "transparent" water colors are the most popular, though there seems to be a growing tendency towards the use of opaque or semi-opaque colors, particularly in connection with tinted papers. Though we shall base our suggestions largely on the use of transparent colors many of them would apply to any colored medium.

If one is accustomed to using water colors indoors he will doubtless prefer to employ the same colors



WATER COLOR BY G. EVANS MITCHELL OF CLEVELAND

GATE AT WINCHESTER, ENGLAND



FROM A SKETCH BY WALLACE H. SMITH OF ST. LOUIS

INTERIOR OF ST. SEVERIN, PARIS

outdoors. Almost any standard make will do and one does not necessarily need a large number of hues. Very clever sketches have been made with nothing but a good red, yellow, and blue, other hues being mixed from them as needed. Some of the inexpensive sets of students' colors are capable of producing splendid work. An advantage of a slightly larger palette is that it provides not merely variety in hue but also in character of pigment. Some pigments give very clear washes showing little or no granular character when dry, while others, either when applied by themselves or in mixtures, leave a definite sediment or deposit. Sometimes one needs the clear, smooth wash and sometimes the other.

As a principle it is well for one to buy all his colors of a single reliable make and to stick to that make. For hues of the same or similar name put out by different manufacturers do not always have like qualities. Immediately a palette has been decided upon and the colors purchased, one should experiment with each color by itself and in admixture with every other color, until he knows exactly what it is capable of doing. He should realize, too, that some pigments are permanent, some only moderately so, and some fugitive. Manufacturers of colors frequently list them under some such classification so one can tell ahead of time about what to expect in the way of fading. Or the user can test his own by carrying a small wash of each pigment across a sheet of paper, next exposing half of this paper to bright light for a month or so while the other half is kept in the dark, later bringing them together for comparison.

The palette listed below is sufficiently complete for almost any purpose, either in sketching or rendering, as it is a sort of composite one made up from those of several well-known water colorists. One need not purchase so many colors, though if he does much work there is no real economy in limiting his palette to a few. Whatever one starts with as he experiments he will naturally make some changes suited to his own needs or inclinations.

YELLOWS	REDS	BLUES
Aureolin	Carmine	Antwerp Blue
Gamboge	Alizarin Crimson	Prussian Blue
Cadmium Yellow	Crimson Lake	Cerulean Blue
Indian Yellow	Vermilion	Cobalt
Naples Yellow	Light Red	New Blue
Yellow Ochre	Burnt Sienna	French Blue
Raw Sienna		

OTHER PIGMENTS

Chrome Orange	Emerald Green
Cadmium Orange	Hooker's Green (light and dark)
Vandyke Brown	Sap Green
Sepia	
Chinese White	Ivory Black

It must be realized from what we have said that a palette which might be good in one make of color might be less satisfactory in another, differing not only in hue but in textural character of resulting washes. In Winsor & Newton's, for instance, French Blue, Burnt Sienna and Raw Sienna, when mixed in various proportions give wonderful sediment washes. In some makes the same combination produces nothing but mud. The above list, therefore, might make a much better balanced palette in one kind of colors than in another.

To the beginner who is buying colors for the first time the question comes up as to whether to purchase them in tubes or pans. In many ways, especially for outdoor work, the tube colors are better. Their main advantage is that they are softer so that one can mix intense washes with them more quickly than with pan colors. If pan colors are naturally soft or are kept so through constant dampening, the lighter pigments are in danger of becoming stained through contact with brushes containing darker colors. Tube colors, on the other hand, though soft when new, sometimes harden in a year or two to a degree of solidity which makes them even more difficult to soften than pan colors. The caps frequently stick fast, too, though they may generally be loosened with little trouble if dipped in water for a moment or heated with a match.

Box for colors. A japanned tin box of sufficient size and proper kind to hold one's colors is desirable. One with a palette cover containing a thumb-hole is convenient. One should arrange his colors in his box and on his palette in some systematic way, according to spectrum, perhaps, or with such colors as are most frequently mixed together placed adjacently.

Accessories. Aside from paper, brushes and colors but few things are required to complete one's equipment. Pails or bottles or other containers for water are needed, together with a board of convenient size (unless one is using mounted paper, when it is not so essential), an extra sheet of paper for practice washes, a pencil or two for sketching, an eraser and blotters or a rag. Some saucers or color pans are handy if work is large. A soft sponge, too, may prove a welcome addition to one's impedimenta. It is wholly a matter of choice whether or not one takes a sketching stool, easel and such equipment, but as a rule such things are a handicap and make one conspicuous if there are people around.

We must not neglect a very simple yet at the same time important part of one's equipment, and this is a view-finder. We have in mind simply a sheet of paper or cardboard, postcard size or so, with a rectangular opening through it an inch or two wide and two or three inches long. One can be made on the spot if necessary.

Selecting the subject. With equipment prepared the fun begins. One takes himself to a likely spot and hunts for a suitable subject. Needless to say this selection should not be too hastily made; on the other hand there is no sense in searching by the hour. Some

TWO WATER COLOR SKETCHES BY J. L. BERRALL—DONE WHILE TRAVELING IN ITALY

THESE ARE BOTH COMMENDABLE FOR THEIR SIMPLICITY—THE ORIGINALS WERE RICH IN COLOR

PENCIL POINTS SERIES
of
COLOR PLATES

The two color plates in this issue were made by Edgar I. Williams, New York architect and teacher, and Fellow of the American Academy in Rome, during a trip abroad a few years ago. They were selected as excellent examples of outdoor water color sketches and it is interesting to note that Mr. Williams was awarded the annual medal of "The Digressionists" for them and two others done at the same time.

This particular sketch is noteworthy for the direct and vigorous use of color and for its pleasing composition. The original was 13½" x 10¼" in size.

CHURCH AT RÄTTVIK, SWEDEN

FROM A WATER COLOR BY EDGAR I. WILLIAMS

TOWN HALL, STOCKHOLM, SWEDEN

FROM A WATER COLOR BY EDGAR I. WILLIAMS

CHURCH AT RÄTTVIK, SWEDEN

FROM A WATER COLOR BY EDGAR I. WILLIAMS

UNIV. OF MICH.

PENCIL POINTS SERIES
of
COLOR PLATES

The subject of this plate includes one of the most important and interesting examples of modern Swedish architecture. Both this and the other water color shown in this issue were drawn on Whatman's 300 pound cold-pressed water color paper, the color being applied after a preliminary pencil layout. The size of the original drawing was 10¼" x 14". Mr. Williams employs a palette consisting of seven colors as follows: Yellow Ochre, Indian Yellow, Burnt Sienna, New Blue, Cobalt Blue, Madder Lake, and Emerald Green.

FROM A WATER COLOR SKETCH BY A. R. EASTMAN—"ANN HATHAWAY'S COTTAGE"
DONE WHILE TRAVELING ON THE PLYM FELLOWSHIP OF THE UNIVERSITY OF ILLINOIS
Size of original—10¾" x 8"

individuals have the ability to select good subjects almost by instinct; others seem at a loss to know where to turn. If one has difficulty in this direction the "view-finder" should come in handy. Its purpose is much like that of the camera view-finder. In using it one closes one eye and looks through the aperture with the other towards a possible subject. The finder is held in a vertical plane and at a convenient distance from the eye so that it acts much like the frame of a picture, concentrating the attention on a limited area at a time. When a good subject has been found it should be studied through the finder from various points of view until the ideal position from which to sketch is located.

The real or embryo architect is quite likely to search for something of architectural interest, and though there is undeniably an advantage in sketching architecture, as I have already pointed out, there is also an advantage in doing other subjects with which he is relatively less familiar; ships, for instance. For when one sketches architecture he is sometimes so engrossed in conscientiously representing all the detail which he sees or knows to exist that he loses sight of more important impressions of form and light and color. If he attempts a ship, on the other hand or anything else to which he has previously given little serious attention he is more easily able to grasp something of the painter's point of view, seeing general impressions rather than detail. If buildings are chosen it is often well, for this same reason, to select those of a picturesque or dilapidated sort, regardless of architectural merit. It is usually advisable, too, particularly when one selects as his subject a complete building or something equally large in size, for him to take his position some distance from it so that the detail will not be too plainly seen. It is much easier to form correct impressions of things when thus viewed. If a small subject is selected this need is less evident.

One should not, by the way, think that small or extremely simple subjects are beneath him. All too often the beginner selects such large and complicated things to sketch that he finds it impossible to do justice to them in the time available and so becomes discouraged. The subjects by J. L. Berrall reproduced on pages 288 and 324 are excellent in their simplicity,

TWO WATER COLOR SKETCHES BY J. M. ARELLANO—OLD MILL IN PENNSYLVANIA AT THE LEFT AND VIEW IN CHARTRES AT THE RIGHT

The Pennsylvania subject was done while the artist was a student at the **University** *of Pennsylvania while the other was done later during his European travels. He is now a successful architect in Manila.*

emphasizing this fact that such objects may prove most interesting subjects.

Lighting. No matter how pleasing a subject may be in itself there is usually some particular time of day when it can be viewed, and therefore sketched, to the best advantage. One's success or failure in producing an interesting sketch may even depend to quite an extent on whether or not the subject is well lighted. He should make sure before sketching, therefore, that the light and shade and shadow compose to good advantage. The experienced man can recompose such things but the beginner should not attempt to do too much in this direction.

Comfort. One cannot do his best work unless he is comfortable. Consequently he should pick each subject with this in mind. Artists generally prefer to sit in the shade or where their paper, at least, is shaded, for not only is a sunlit paper dazzling but shadows such as those cast by the hand and brush across the paper may prove confusing. A finished sketch is usually viewed in the shade, too, and not in sunlight, so should be done with this in mind.

Analyzing the subject. If one hopes to make good sketches and wishes to proft to the greatest extent while sketching he should anaylze each subject for a few minutes before starting to draw, continuing the process as the work progresses. His method of attack will depend not only on the subject itself but on his purpose in making the sketch, and in his analysis this purpose should always be uppermost in mind.

The architecturally inclined individual, especially if a beginner, usually finds it to his advantage to try to represent the objects before him as exactly as is possible in reasonable time. This is particularly true if he works from some famous building, such as a masterpiece of old-world architecture. A sketch resulting from this method of approach often has much the effect of a colored photograph, though perhaps showing less exact detail, and more technique.

Sometimes one's intention is to gain a more impressionistic interpretation of his subject, done throughout with greater freedom. He cares less for exactly matching every form and value and hue than he does for obtaining a sketch which will give an impression of the larger aspects of the whole. He sacrifices detail in places in order to bring added emphasis to such broader effects as seem to him most essential. Such an impressionistic treatment may be as truthful—even more truthful—than the other, yet it is sure to be different. In such a sketch one might catch the feeling of the sunshine on a hot afternoon—a vibrant, scintillating sunshine, or he might interpret a misty atmospheric condition following a storm, or the afterglow of a sunset. In such a sketch one might gain a sense of actual space, depth, and detachment often lacking in the more photographic type of representation.

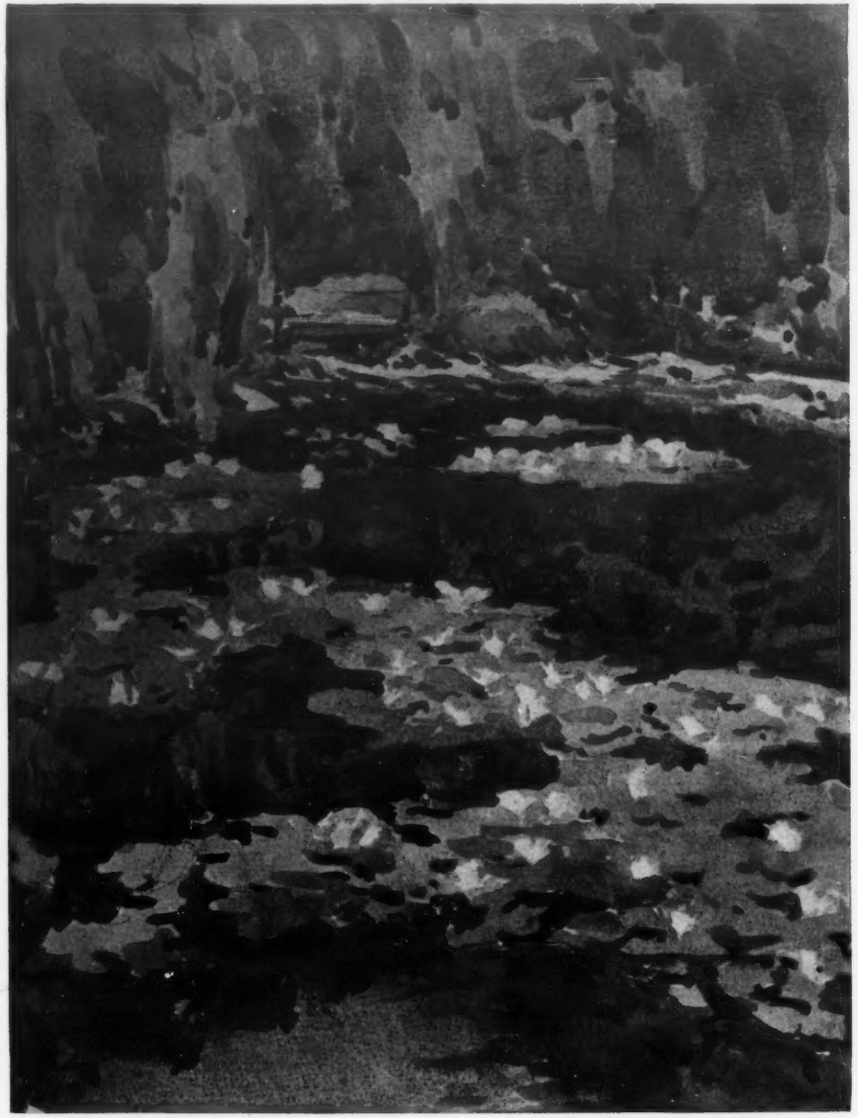
Now and then one sketches without attempting to make anything approaching an accurate interpretation of the subject as it stands. He takes the subject as inspiration only; adding, subtracting, and recomposing at will. In mass, in shade and shadow, in color he takes such liberties as accord with his purpose. Usually he strives for something more interesting or more beautiful or at least more original than is expressed in the typical sketch. If in working with this point of view he approaches the ideal which he has in mind the method is certainly justifiable.

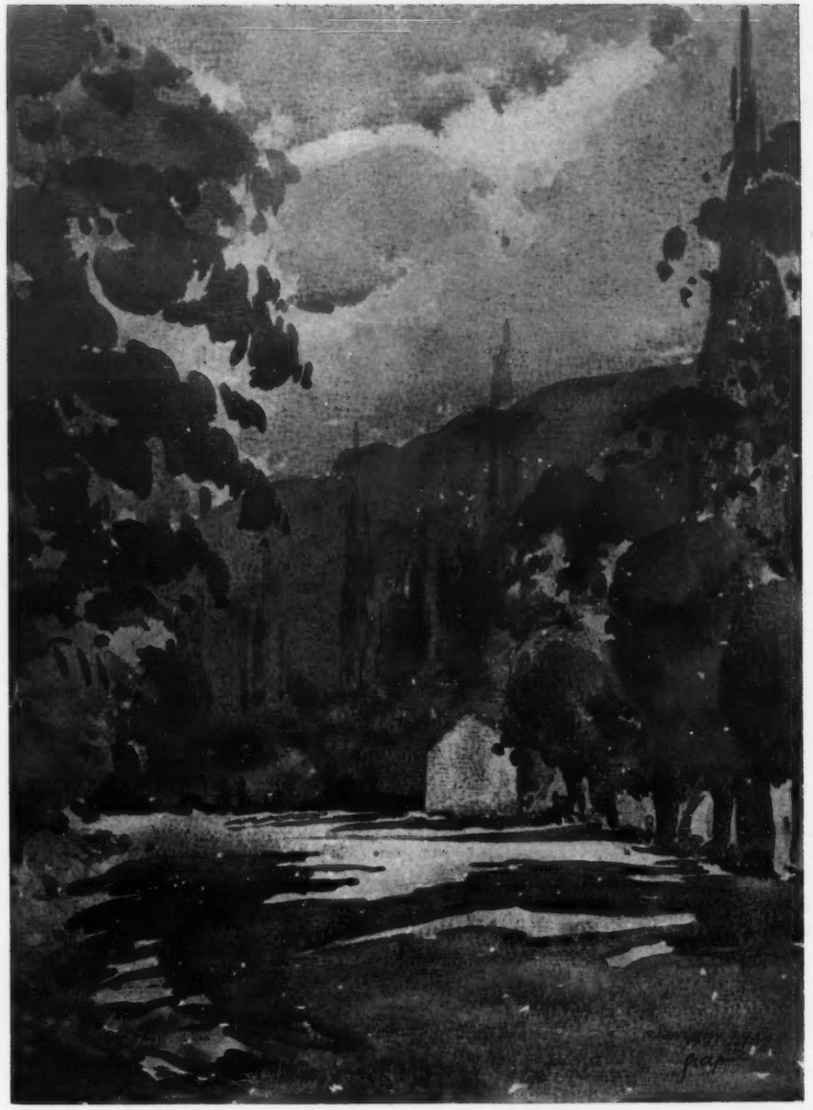
The beginner (to return to the matter of selecting the subject) will be wise to try to find something to draw which has in itself sufficient beauty or character and then to attempt to interpret it as truthfully as possible as it stands, with little if any attempt at recomposition. He may, of course, simplify to any reasonable extent, omitting or suppressing such details as seem irrelevant or inconsequential. So far as general facts of form and tone and color are concerned, however, he should take few liberties if he is to gain the most from his exercise.

In analyzing the subject with this truthful type of representation in mind one should remember what we have said about the value of learning to see. He should try, therefore, to really see comprehendingly, deliberately comparing things in the distance with those nearby, things above the eye with things below, things to the left with things to the right, things in sunlight with things in shade. He should try to select from all the subject matter before him the essentials of the subject, deciding on the relative importance of such elements as do seem essential. He should fix in his mind the direction of light. He should note the predominant colors. And he should remember that it is valuable to try to retain such impressions for later use.

Center of interest. We have spoken of the advisability of selecting a simple subject and we now wish to emphasize the folly of including more in a subject than is necessary. If too much is included the spectator's interest is dissipated. If a subject is at all complex it needs, as a rule, one definite center of interest or focal point which has more importance than the rest of the subject. Such a center of interest may be an entire building, shown against a background of trees, fields, or sky. Or it may be a portion of a building such as an entrance doorway or a tower. It may be a mountain, a tree, or a group of people—anything in fact. One should always examine the subject which he has elected to sketch to see if it does contain such a center. There are almost invariably other subordinate centers of interest, to be sure, but they should not be sufficiently emphasized to detract from the main center. One must particularly avoid having two or more centers of interest of exactly equal importance so that the eye jumps restlessly from one to the other.

It is not bad policy in most cases for one to develop the center of interest first, next working out towards the edges of his sketch. This does not mean that he





TWO WATER COLOR SKETCHES BY CAMILLE ÉTIENNE GRAPIN—LILY POND IN SCHENLEY PARK, PITTSBURGH, AND SUMMER LANDSCAPE IN BURGUNDY

In the sketch at the left the lilies are white and yellow against gray green pads. The water is shown with deep greens and violet while the foliage on the further bank is green with blue shadows. In the landscape the foreground foliage in greens and blues stands out against purple hills and a greenish blue sky. The road is yellow green with blue and violet shadows.

should fully complete the work around the center of interest, to the entire neglect of the rest, but it does mean that it should always be clear in his mind, and generally on his paper, at any stage of progress that such a center is being developed. In this center the contrasts of light and dark will often be the sharpest, the colors the strongest and the detail the most definite. To again use photographic terms, in a good sketch the center of interest is ordinarily "in focus" while other parts, particularly towards the edges or corners are slightly "out of focus" or blurred.

Thumbnail or preliminary sketches. Many students find it of advantage to make a tiny sketch or two as a means of helping them to decide on the best composition or color scheme and through making such a sketch one is forced to think his problem through beforehand.

Starting the work. When the student has selected his subject, found the best point from which to draw it, made himself comfortable, analyzed it, and perhaps made trial sketches, he is ready to proceed with the final sketch itself. The first move is to block in the proportions with reasonable accuracy. This is generally done rather lightly and suggestively in pencil. It often aids one in getting his proportions right if he locates in the subject itself the eye level, sketching this on his paper. He can then make sure that the perspectively converging lines slant correctly in relation to this level. By looking through his view-finder now and then he can also better judge the foreshortened areas, slopes of lines, etc. Before starting his work in color, and now and then as the color work progresses, he should get away from the whole thing for two or three minutes; coming back with eye refreshed he will often find evident mistakes.

We have no space for discussion of technical methods, excepting in a general way. In this connection we highly recommend "The Technique of Water-color Painting" by Richmond and Littlejohns. As a rule one should work "wet," applying plenty of water. This means delays, however, so some artists keep two sketches going simultaneously so that while one is drying progress is being made on the other.

In theory the ideal method of attack in water color is for one to make up his mind before each wash is applied just how it is to look and then try to make it look that way. In other words he should work as directly and economically as possible, seeking his effects with no hesitation. In practice, however, the beginner has to feel his way so usually finds it wise to build up his sketch, applying his lightest tones first, later adding the middle tones, and lastly the darkest and strongest ones. This does not mean, though, that one should go over each wash many times until it is built up to a sufficiently strong value or color, for such a process would rarely give a pleasing result. It does mean that one should finish his light tones first so it will not be necessary for him to apply them over darker tones later, blurring the edges of the latter and injuring their character. In many subjects a good starting point is the sky. Once the sky is on we have a key for comparison. We may compare any color or value in the subject, for instance, with the sky itself and then work for a similar relationship in the sketch. If one is in doubt about the exact tone or color of some area in his subject it may help his judgment if he looks at it through his view-finder where he will have a direct comparison of the area with the white of the paper-finder.

Color schemes. Probably so far as the beginner is concerned he will gain the greatest benefit from his first sketching if he holds reasonably close to the colors as he sees them in the subjects before him; in other words if he matches each color in each subject with a similar color on his sketch (trying his pigment first on his spare paper until he gets it right). Working according to such a scheme, however, he will soon find that his sketches are dead and uninteresting compared with those by other artists who seem to have taken greater liberties. He may wonder how they see the colors they use or if they really do see them.

This brings us to a most important point. One cannot match on his white paper with any pigment yet made the brilliancy of pure sunlight. How, then, is he to represent it? As a rule the nearest approximation that he can get comes from forcing his contrasts. This is usually done by means of opposite or the so-called "complementary" colors. From a standpoint of pigments yellow or yellowish orange gives us the nearest approximation of sunlight. Violet is the complement of yellow and blue is the complement of orange. If violet or blue tones are used adjacent to yellow or orange tones they will intensify the apparent brilliancy of the yellow or orange. Therefore if one wished to make a sunlit stucco wall appear as bright as possible he would represent it with light washes of yellow or orange, intensifying this yellow or orange through the use of blue or purple contrasts in such nearby dark areas as the cornice shadows, windows, etc. This hint is enough to show that the artist who has become familiar with color deliberately uses, even when working for naturalistic effects, individual colors which seem false or forced, for he has learned that by so doing he can cause his work to give final impressions of nature more truthfully than in any other way.

So the student, after a bit, will start to experiment with various means of obtaining desired impressions. There are all sorts of tricks, too, which he will gradually learn but which we cannot put into words. How to wash down or scrub out work with a sponge or rag, for instance. How to apply a few highlights with Chinese White or other opaque color. How to obtain a rough texture by the use of sandpaper, or by scratching with a knife. He must not handicap himself by any self-imposed rules as to what to do or what not to do. He may lay his board flat or tilt it according to preference or purpose. He may hold his

brush like a pencil or drag it on its side. He may work "wet" in places and "dry" in others. In short he may do just as he pleases so long as he gets as close as is possible to the effect for which he is striving. His medium is designed to help, not to handicap him.

Once the student gains a fair mastery over transparent water color on white paper he will doubtless experiment with tinted papers, opaque color, colored pencils, colored crayons, inks, pastels and so on. The colored subjects reproduced in PENCIL POINTS during recent years offer a wealth of suggestions along these lines. Every medium and method is interesting and should be tried, but we warn the student not to rush impatiently through them all. Far better to master them one at a time.

Now for a glance at our illustrations. We have already referred to those by J. L. Berrall, shown on pages 288 and 324. In these, a faithful effect has been obtained by direct means. Nothing is overworked yet enough has been done to bring out the form and texture of each object. Attention is particularly called to the modelling of the vase in the first example and the convincing treatment of the balustrade in the second. Each of these two drawings, incidentally, was approximately 9″ x 12″.

The sketch by Wallace H. Smith, reproduced on page 322, is especially fine in illustrating our point regarding a strong center of interest. The values are well disposed, too. An expressive textural character has been gained through the use of rough paper. This sketch gives a feeling of having been done on the spot; a feeling in which many outdoor sketches, or so-called outdoor sketches are lacking. Mr. Smith's second sketch, page 316, though more complex in composition than the other, is no less convincing an interpretation.

We have selected the sketch of Notre Dame by J. M. Arellano as a splendid exemplification of how a complex subject can be simplified to advantage, and so sketched effectively in a reasonable length of time. This is the sort of subject that the architecturally trained man is almost certain to overdo, attempting too much detail. This, incidentally, was 9½″ x 12″ in size. By the same artist was the Chartres subject on page 326. Here the medium was different, however, lithographic crayon and water color having been combined on a sheet of cream colored illustration board, size 8″ x 11″. Attention is especially called to the interesting texture resulting from this combination. From our own country was the subject of the third sketch by Mr. Arellano on page 326. Such a subject with its building, sky, trees and water, offers excellent practice for the student.

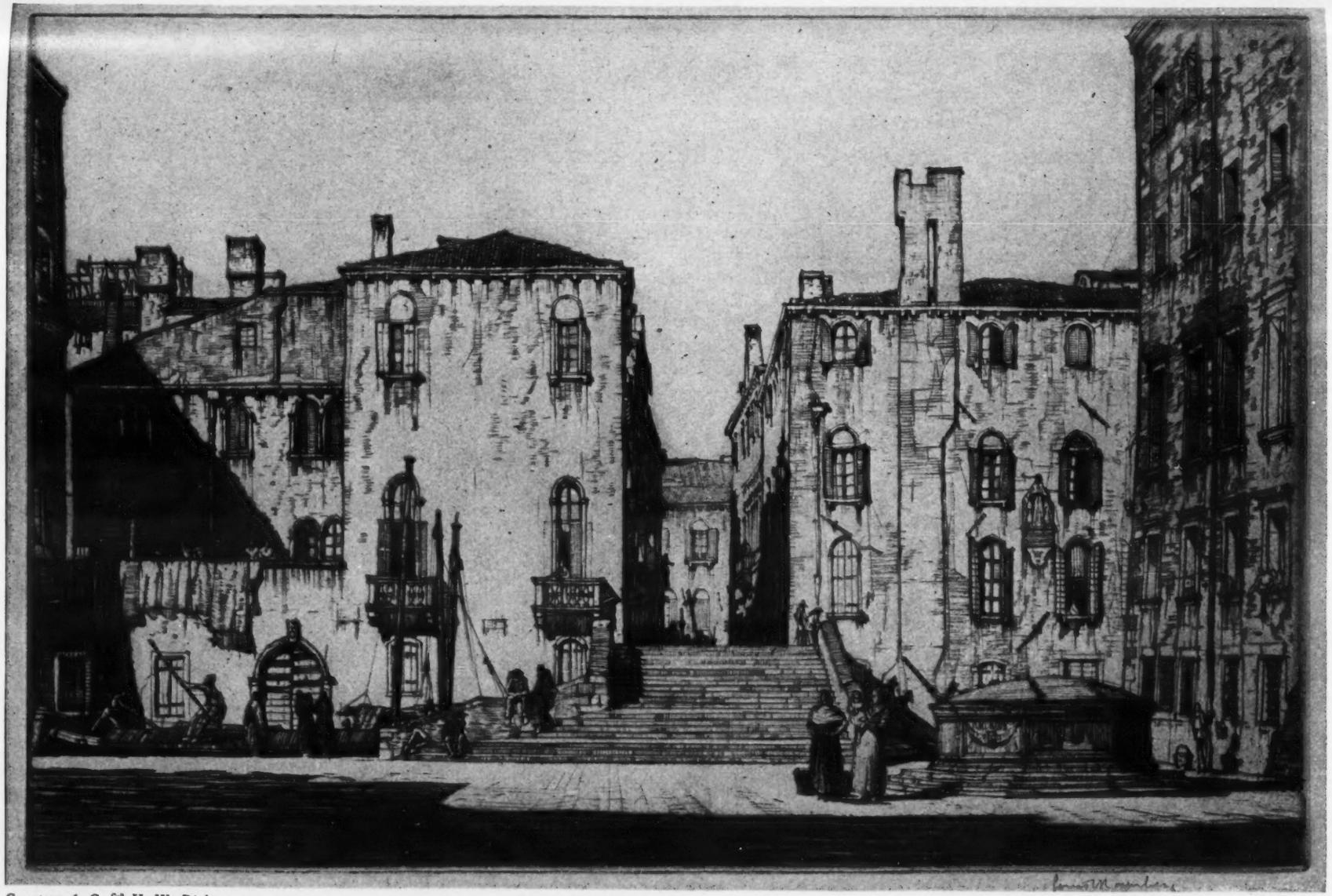
Brilliant in effect through the use of strong contrasts is the G. Evans Mitchell sketch on page 322. Here again we have another subject of a type offering splendid practice. The center of interest is evident, the values well disposed, the textures sufficiently expressed and the whole done with a commendable directness and display of confidence.

Quite different in both subject and handling is the Wrigley Building and Tribune Tower sketch on page 320, of which the artist was Leon Pescheret. The way in which the attention is carried to the center of interest by means of applied opaque highlights is noteworthy. By this means the vertical masses are so emphasized that the strong horizontals below do not detract, but form, instead, a subordinated base from which the rest rises effectively. With a different handling these horizontals and verticals might easily clash in a fight for supremacy.

Lighter in value, yet with sufficient contrast to make them easily read are the two sketches by A. R. Eastman shown on pages 319 and 325. Here, again, no small part of the textural interest comes through the use of rough paper. Attention is called to the little lights which are left between many of the darker values. These are characteristic of much water color work, especially when quickly done. By leaving such whites it is possible for one to go on with a new wash before that previously laid is dry. Incidentally they add brilliancy and sparkle. The student is cautioned not to overdo this particular thing, however, lest it become a conspicuous mannerism.

It is hard to visualize from these reproductions without color the beauty of the originals. This is especially true in the case of those by C. E. Grapin on page 328. This will be realized if the colored reproduction of one of the same artist's sketches of similar nature, appearing in the April 1928 issue of PENCIL POINTS is turned to. If reference is made to this number, by the way, the other colored illustration by the same artist should be studied as showing an equally free interpretation of an entirely different subject. Much can be learned from this particular drawing to aid one in outdoor work. And these accompanying halftone reproductions should not be neglected, as they show, among other things a freedom of handling, a "wetness" of treatment, and a sort of decorative pattern quality from which valuable suggestions can be gained.

Now finally, we refer to the delightful drawings by Edgar I. Williams reproduced as our color plates this month. I must be careful what I say by way of comment for in this case the artist was my own professor at M. I. T. Yet what could be said to add to or detract from the drawings themselves? One has only to observe the "sure" handling of the two skies to realize that the skill which we all admire at Tech is as evident in Mr. Williams' water color sketching as in his work in design. It is results like these, expressive, direct, free without being sloppy, convincing without being too detailed, colorful without being garish, so delightful that we like to enjoy them without thought as to just how they were done, that not only make us realize that most of us have far to go before we have "arrived" as water color painters but at the same time inspire us to greater effort in this direction.



Courtesy A. C. & H. W. Dickens

FROM A DRYPOINT BY LOUIS C. ROSENBERG

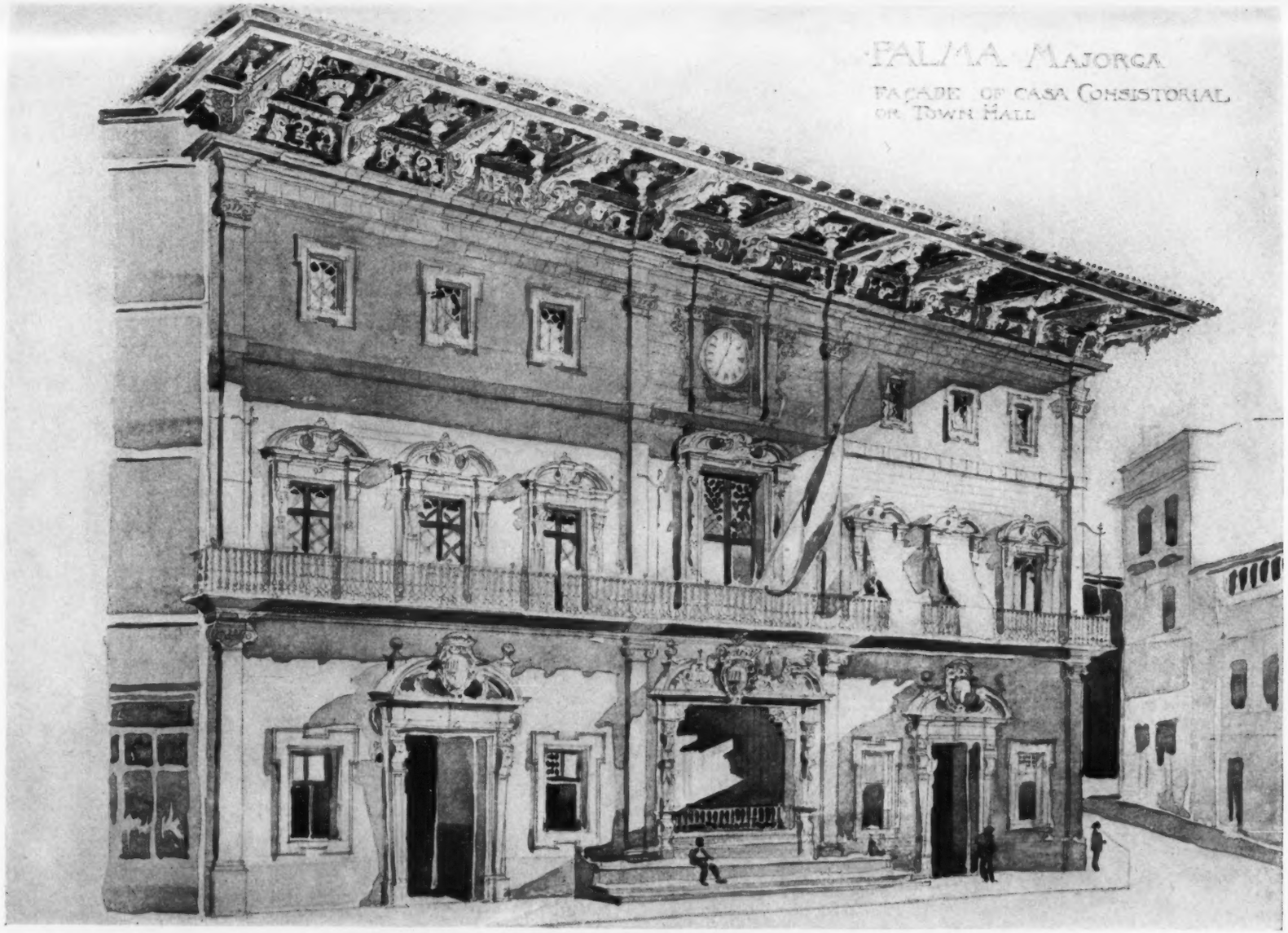
CAMPO DEI JESUITI, VENICE

UNIV. OF MICH.

PLATE XVII

VOLUME X NUMBER 5

The drypoint by Louis C. Rosenberg reproduced on the other side of this sheet is, in our opinion, one of the finest plates yet produced by this distinguished American etcher. The reproduction, unfortunately, owing to the limitations of the halftone process, fails to do justice to the beautiful clarity of the shadows in the original, but perhaps will convey some idea of the masterly composition and craftsmanship. The original plate size was 10⅛" x 6⅞".



UNIV. OF MICH.

RENAISSANCE ARCHITECTURE AND ORNAMENT IN SPAIN

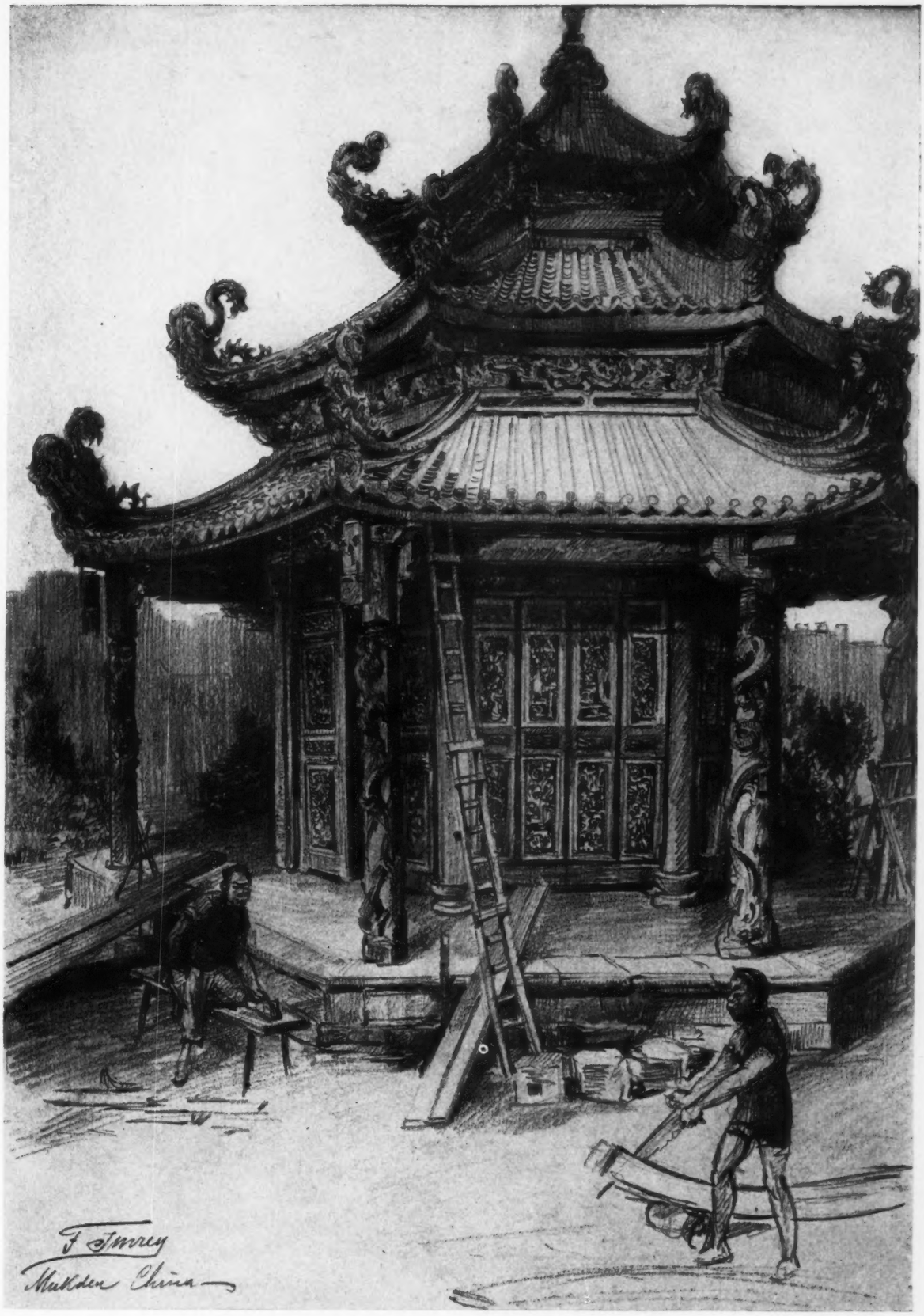
A PLATE FROM THE WORK BY ANDREW N. PRENTICE

PLATE XVIII

VOLUME X NUMBER 5

"This handsome building, dating from the end of the sixteenth century and built of a warm-coloured stone, is chiefly remarkable for its projecting wooden cornice, divided into compartments, and supported at intervals by long horizontal cariatides, carved to represent grotesque figures of men and women. The arms of the State of Palma appear over the doorways, between which is situated a large opening, or window, at present boarded up, which was used at one time for the sale of lottery tickets. On the first floor are the reception saloons with a heavy wooden ceiling rather coarsely carved. It is a matter for satisfaction that the authorities have decided to preserve the fine old roof which a year or so ago showed signs of falling down, and the question of its removal was talked of; but it is to be hoped that the dark brown tones the soffit has assumed through exposure for centuries will not be scraped and renewed with gilt and colour according to modern ideas of the original decoration."

A. N. PRENTICE.



FROM A PENCIL DRAWING BY FERENC IMREY

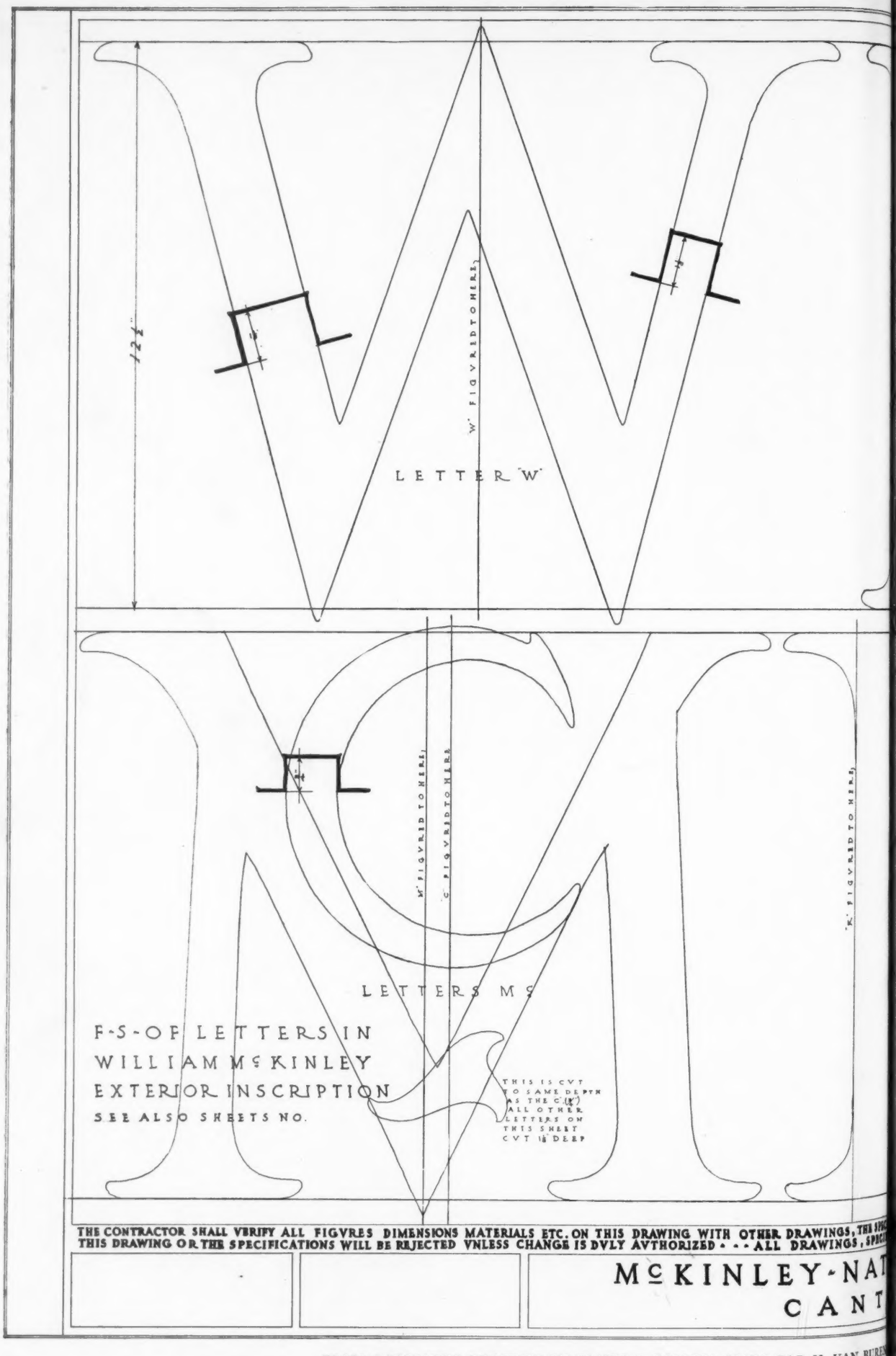
CHINESE SHRINE AT MUKDEN

UNIV. OF MICH.

PLATE XIX

VOLUME X NUMBER 5

In addition to being a straightforward unmannered delineation of what the artist saw, this drawing is of interest as showing a typical piece of Chinese architecture. The original, which measured 13¼" x 18¼", was drawn on a sheet of sepia tinted illustrators' board and the sky was painted in with Chinese white.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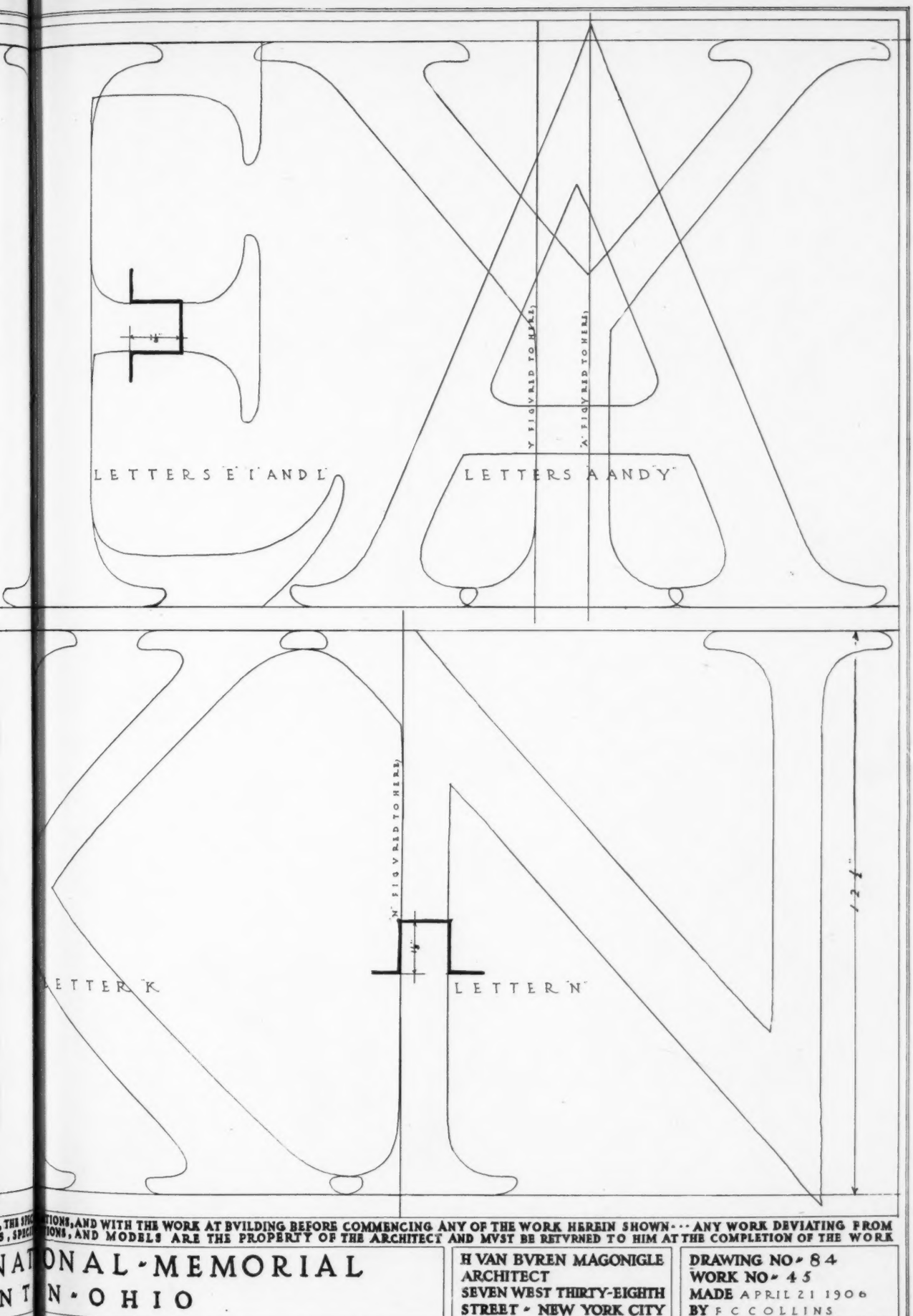
FROM A WORKING DRAWING BY FRANK C. COLLINS, MADE FOR H. VAN BUREN GONIC



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H VAN BVREN MAGONIGLE
ARCHITECT
SEVEN WEST THIRTY-EIGHTH
STREET · NEW YORK CITY

DRAWING NO· 84
WORK NO· 45
MADE APRIL 21 1906
BY F C COLLINS

...N BURE...GONIGLE, ARCHITECT—REDUCED TO EXACTLY ONE THIRD ORIGINAL SIZE

UNIV OF MICH

DANCE PANEL BY W. T. BENDA

SHOWN IN THE ARCHITECTURAL AND ALLIED ARTS EXPOSITION IN NEW YORK

PLATE XX

VOLUME X NUMBER 5

The original of this interesting geometrical design is approximately 8' x 3'. The panel is done in oil on a Pompeiian red background, the Satyr and ornament being done in a verdigris green. The panel was on exhibition last month at the Architectural and Allied Arts Exposition in New York.

REPORT OF THE LE BRUN SCHOLARSHIP COMPETITION FOR 1929

THE PROBLEM THIS year is a non-sectarian Chapel erected as a War Memorial in a moderate sized city, the site being in a parked slope at the axis of a main residential avenue.

Twenty-five sets of drawings were submitted by the contestants, most of whom made a very creditable showing.

The Jury consisted of:—

D. Everett Waid, H. Van Buren Magonigle, Louis Ayres, Oliver Reagan, and Otto R. Eggers.

The prize was awarded to Emile F. C. Backstrom of New York City; 1st mention to U. Floyd Rible, Philadelphia; 2nd mention to David T. Jones, Philadelphia; 3rd mention to Martin Luther Beck, Princeton; 4th mention to Anthony Thormin, Cleveland.

The Le Brun Scholarship was founded in 1911, by Pierre Le Brun who beside other great works designed the Metropolitan Tower. Competitions for the prize now take place each year and the winner is enabled to spend at least six months abroad for the study of architecture. The stipend is $1,400.00.

The competition is held under the direction of the New York Chapter of the American Institute of Architects. Each contestant must be a citizen of the United States between the ages of 23 and 30 and must be vouched for by a member of the Institute as to his qualifications and fitness.

The prize design reproduced on pages 340 and 341, shows a well considered scheme of reasonable size and scale and is simply arranged. It has sufficient religious character to denote its purpose and is an adequate and dignified ending for the residential avenue upon which it faces. The Jury commended the very satisfactory presentation of the plan.

1st Mention—Mr. Rible has made a remarkable presentation of the problem. The design shows the author's extraordinary imagination and ability in both design and rendering. The Jury, however, felt that the scale was too overpowering for the purpose and setting indicated in the program, and also that the extreme height of the nave would be out of proportion to its length. It was also felt that the omission of the crowning feature would have improved the general composition. The exquisite quality of design and rendering shown in the great perforated window and various other features was highly commended by the Jury. The drawings are shown on pages 342 and 343.

2nd Mention—This scheme *(see page 344)* showed a well designed chapel of reasonable scale although its Gothic character would have permitted greater height and a consequent increase in dignity and impressiveness. The lack of an adequate perspective which might have shown up the building to greater advantage was regretted by the Jury.

3rd Mention—Mr. Beck had a very interesting elevation and the plan with its unique approaches deserves much commendation. The perspective, however, discloses a somewhat top-heavy effect in the tower not particularly noticeable in the elevation.

4th Mention—This set of drawings shows a good front elevation and a very interesting plan. The boxlike character of the building is emphasized in the unfortunate point of view of the perspective.

The Jury felt that the chapel, which is necessarily of a religious character, was too much subordinated to the War Memorial feature in the last two sets of drawings mentioned.

EMILE F. C. BACKSTROM

EMILE F. C. BACKSTROM, winner of the LeBrun Travelling Scholarship for 1929, was born in Pipestone, Minn., in 1899. He began the study of Architecture at the University of Minnesota, where he received the Degree of Bachelor of Science in Architecture in 1923. Since his graduation he has been in the offices of the Bertram G. Goodhue Associates, and Henry C. Pelton and Allen and Collens, where he is now employed. Mr. Backstrom feels greatly indebted to his various teachers among whom are Burnham Hoyt, Professor Leon Arnal, and O. H. Murray, as well as to Mr. L. W. Eisinger.

Mr. Backstrom plans to sail for Europe in July. His winning drawings are reproduced on pages 340 and 341.

AMERICAN ACADEMY IN ROME

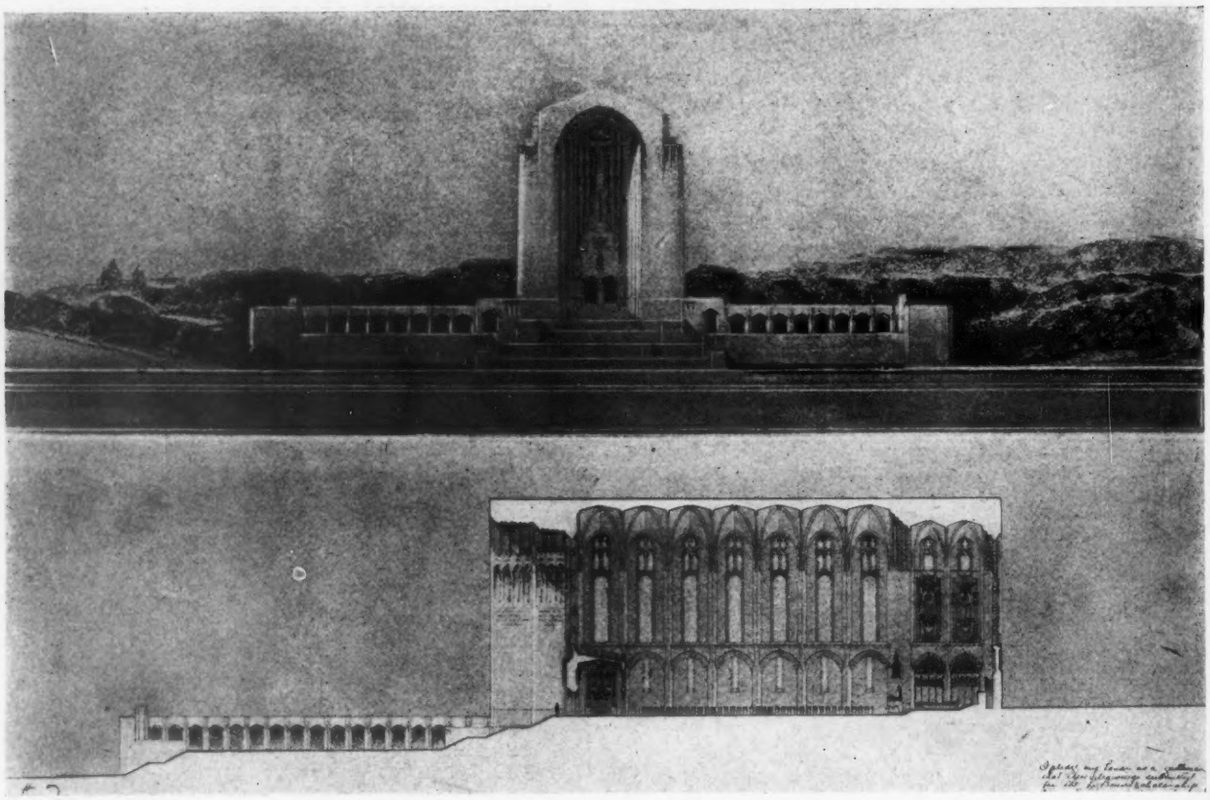
PRELIMINARY COMPETITION FOR THE PRIX DE ROME

THE PRELIMINARY FOURTEEN-HOUR competition for the award of the Wm. Rutherford Mead Fellowship in architecture resulted in the selection of seven final competitors:

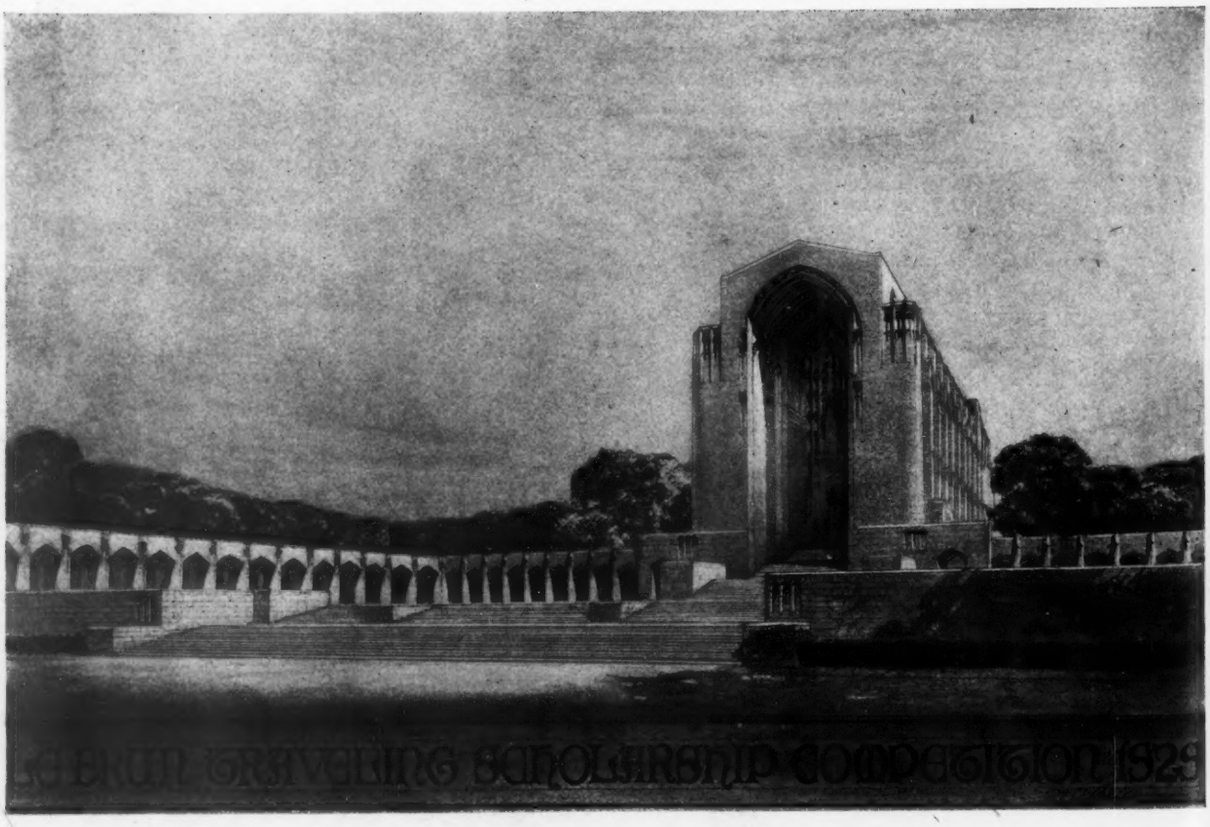
Wm. Brooks Cobb of Yale University
Wm. Piers Crane II of University of Illinois
Herschel G. A. Elarth of University of Illinois
B. Kenneth Johnson of University of Illinois and Yale
Elmer I. Love of Carnegie Tech. and University of Illinois
Earl C. Morris of Columbia University
John E. Miller of Catholic University of America.

There were 47 preliminary competitors, representing most of the leading schools of architecture. The problem was a design for a public square. On the Jury of Award were: Messrs. Wm. Mitchell Kendall, *Chairman*, Charles A. Platt, John Russell Pope, and Louis Ayres.

The final competition is to be held during the period of 4-weeks extending from April 27th to May 25th inclusive.



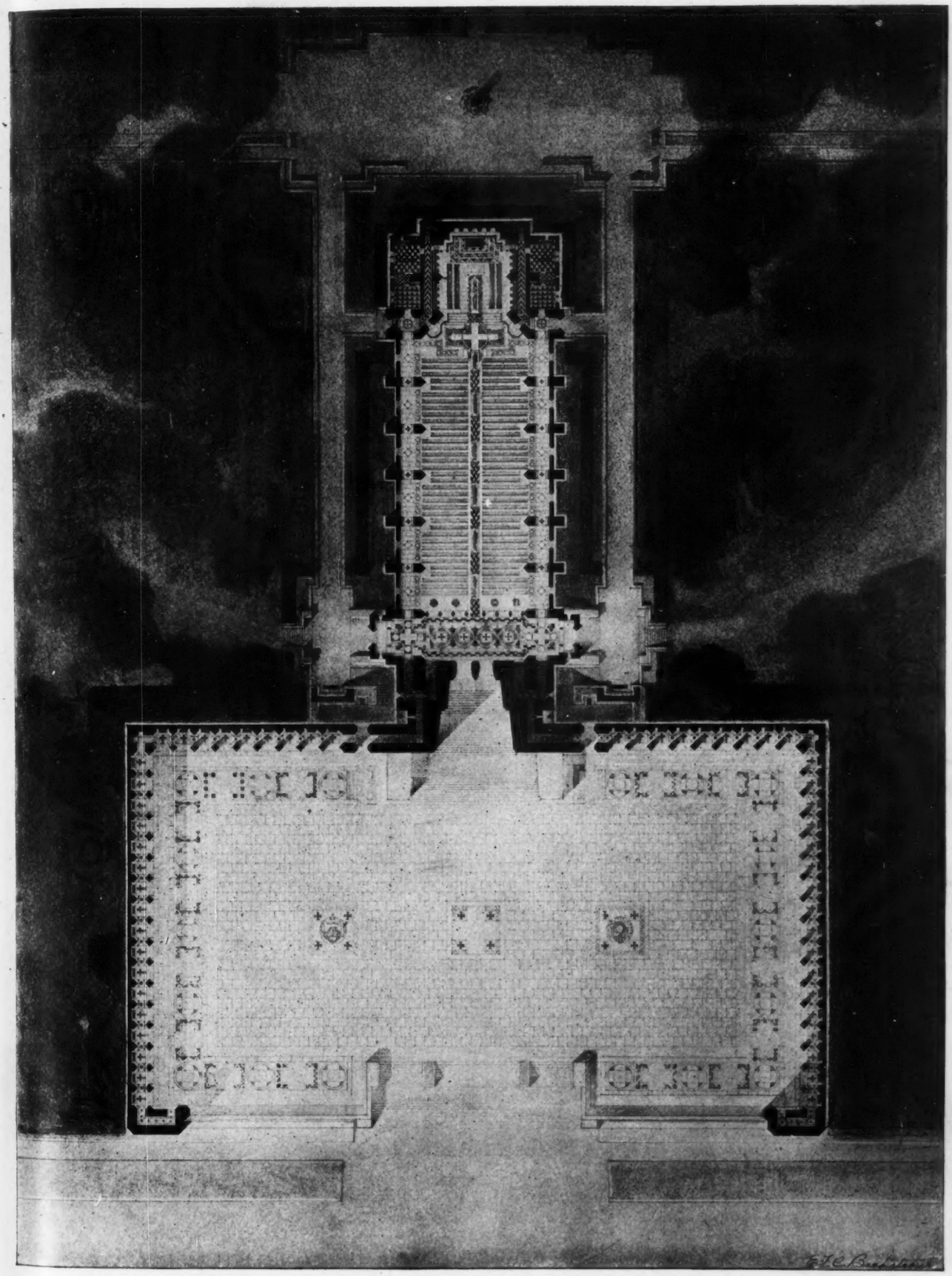
Elevation and Section



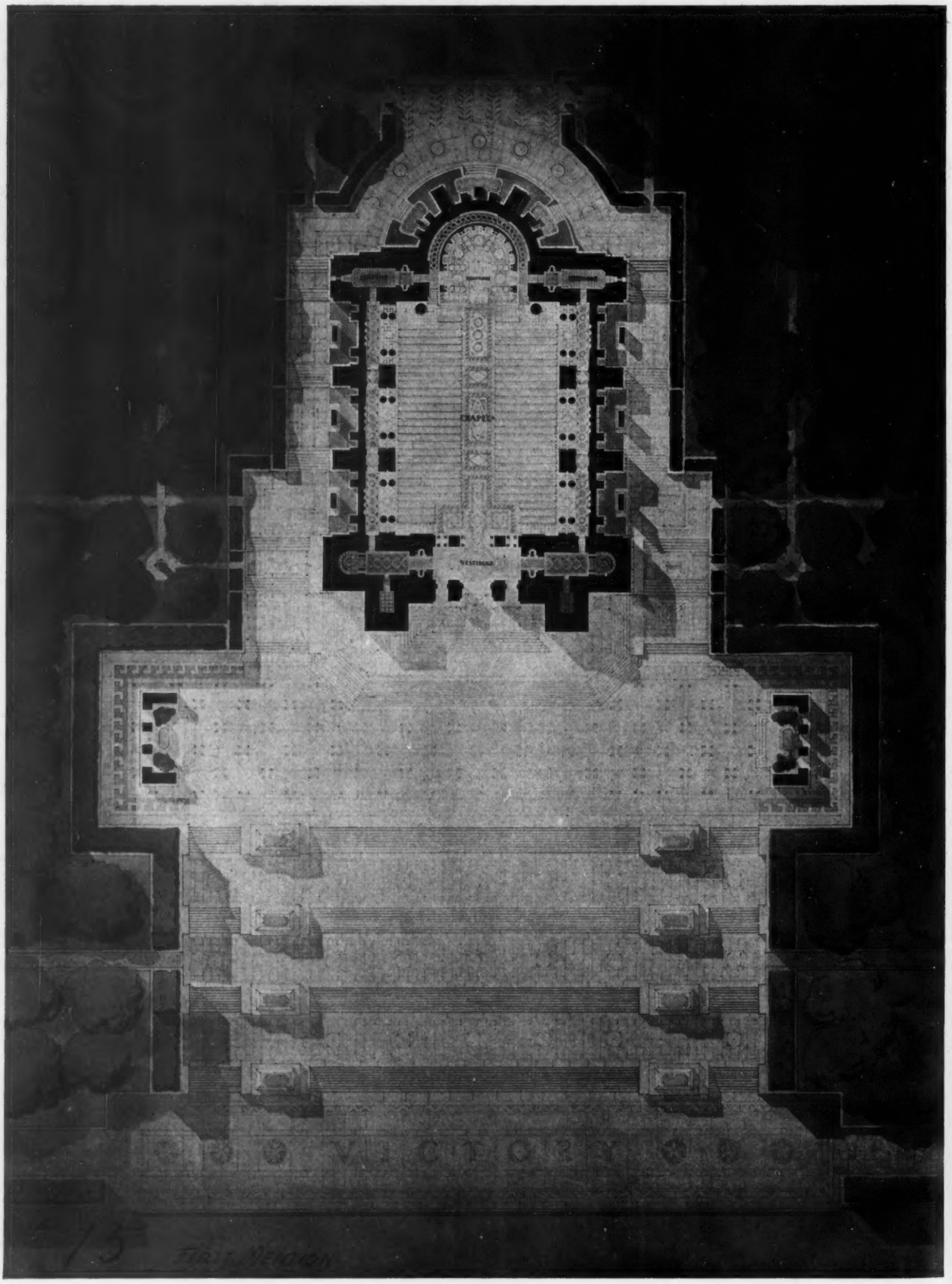
PRIZE WINNING DESIGN FOR A WAR MEMORIAL CHAPEL BY EMILE F. C. BACKSTROM, OF NEW YORK

LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

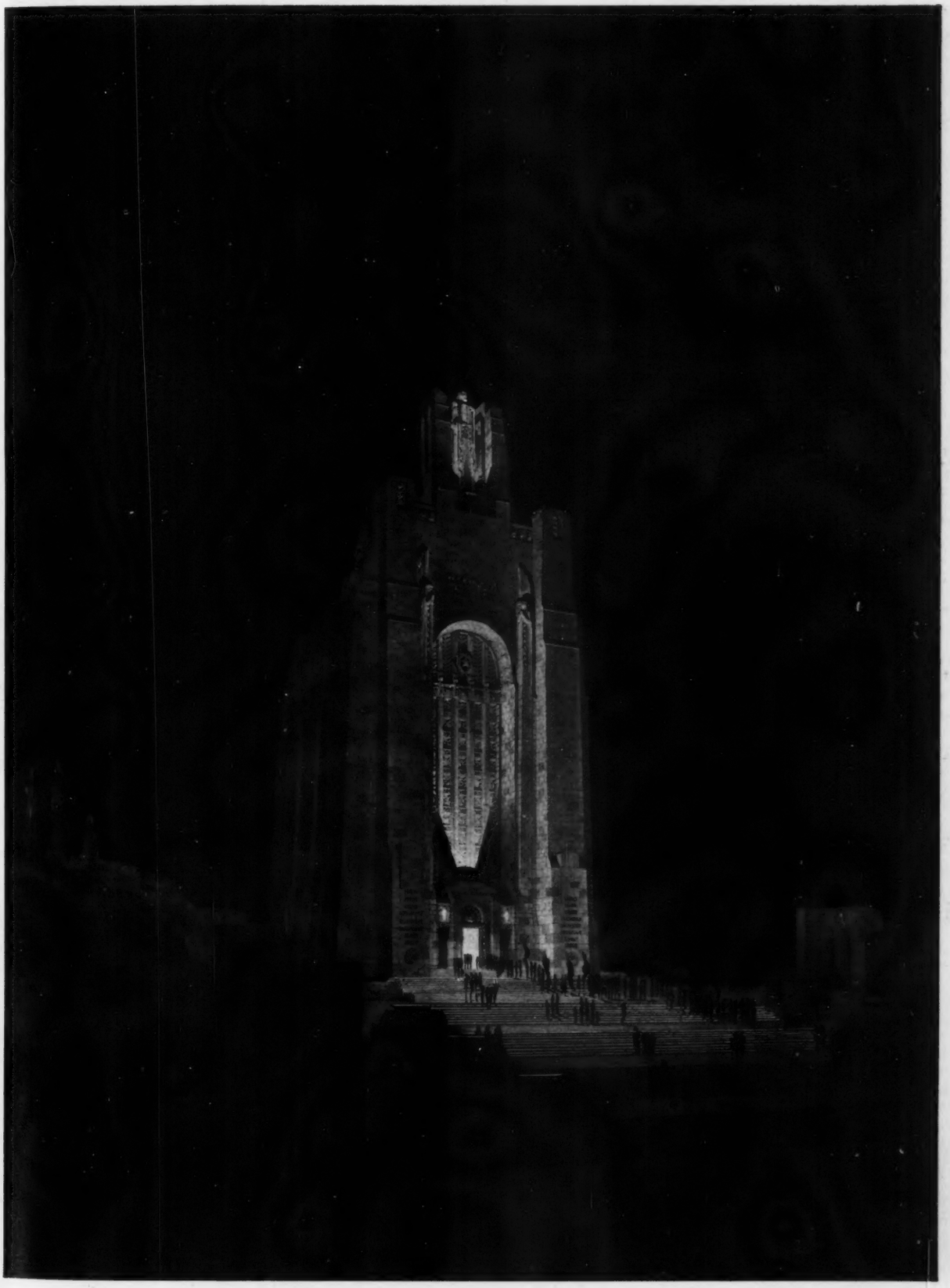
(See text on page 339)



PLAN OF PRIZE-WINNING DESIGN FOR A WAR MEMORIAL CHAPEL BY EMILE F. C. BACKSTROM
LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929



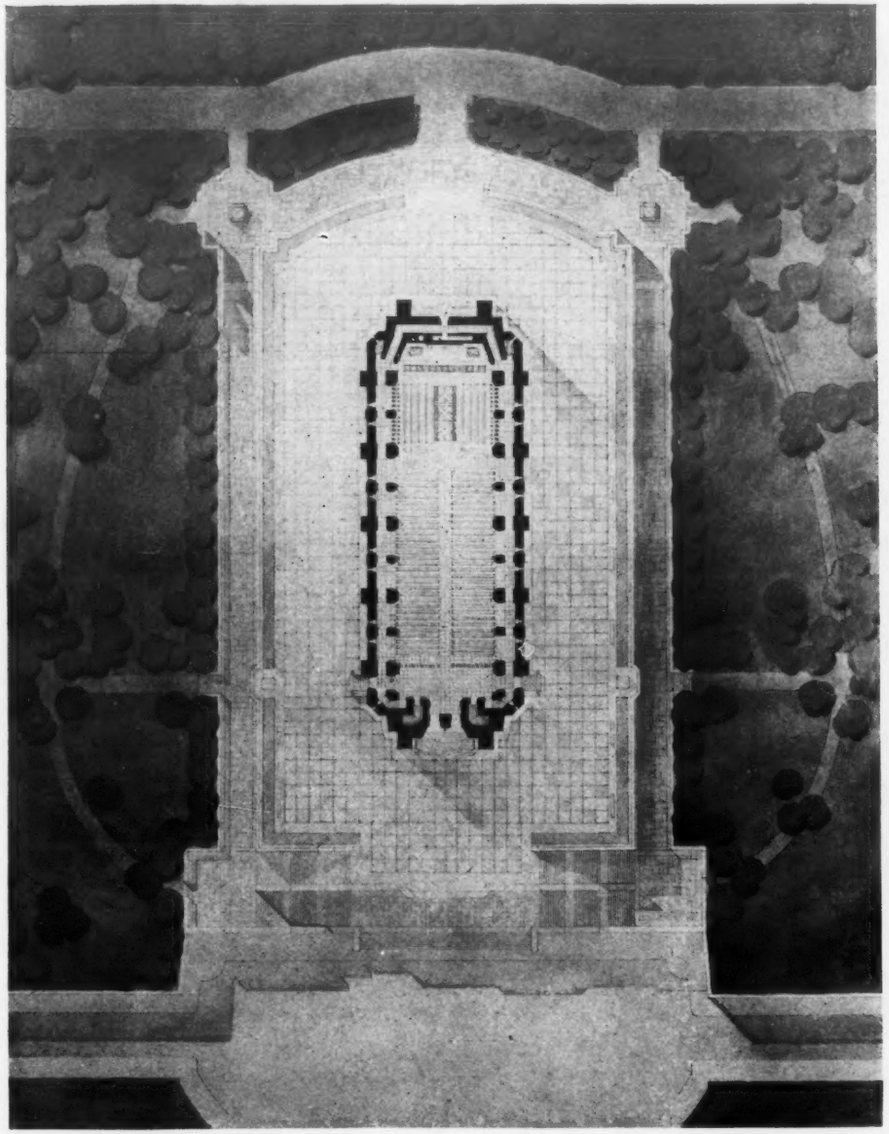
1ST MENTION—DESIGN FOR A WAR MEMORIAL CHAPEL BY U. FLOYD RIBLE, OF PHILADELPHIA
LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

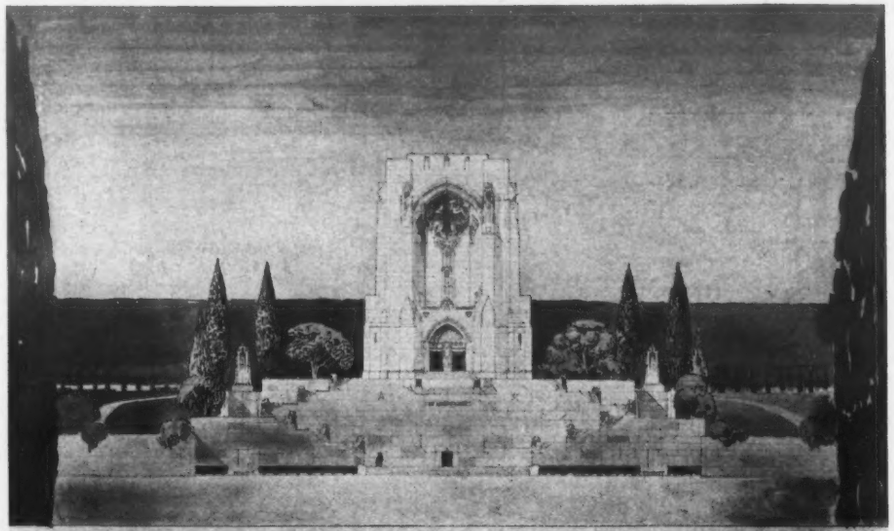


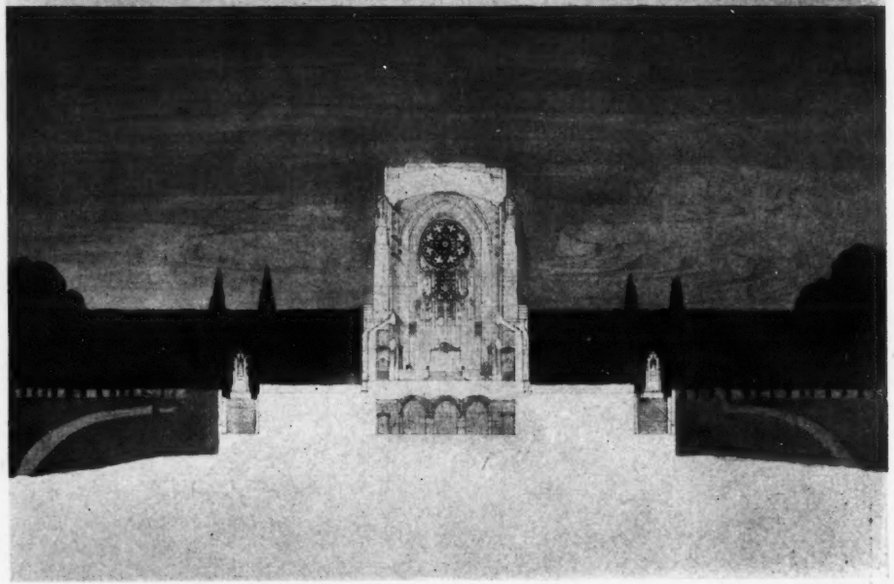
1ST MENTION—DESIGN FOR A WAR MEMORIAL CHAPEL BY U. FLOYD RIBLE

LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

(See text on page 339)



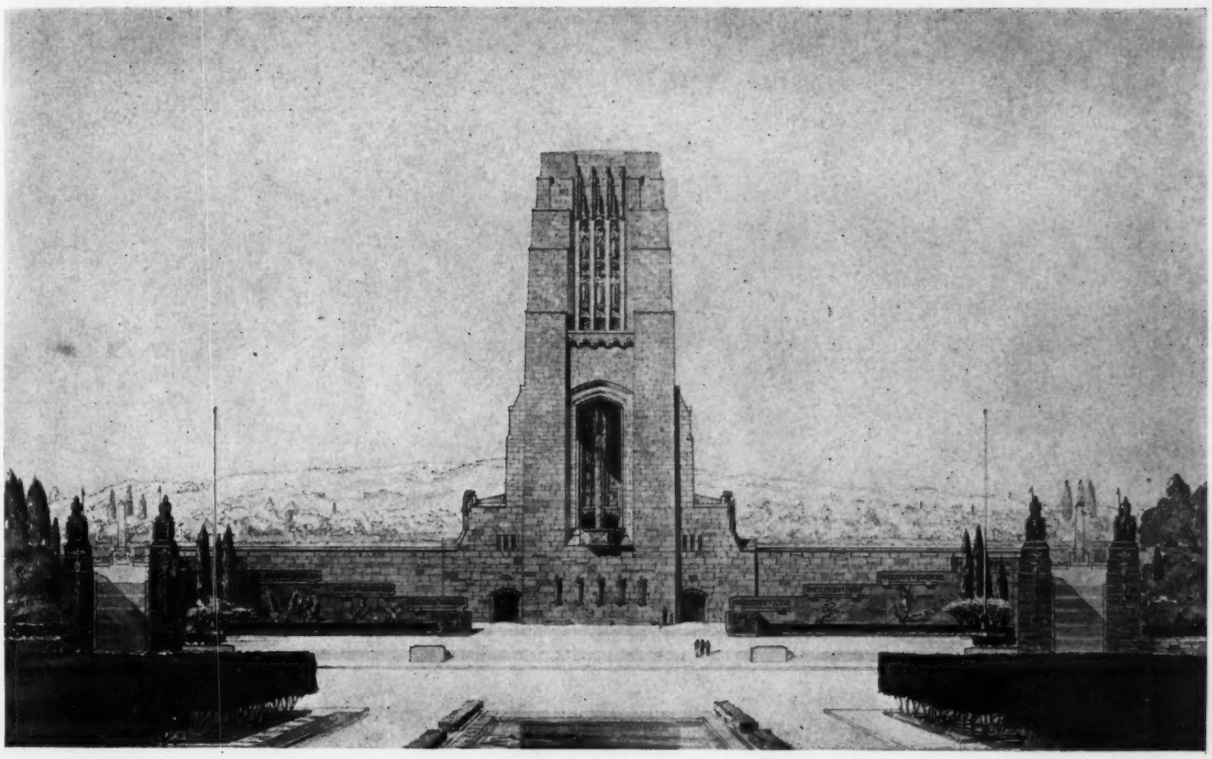




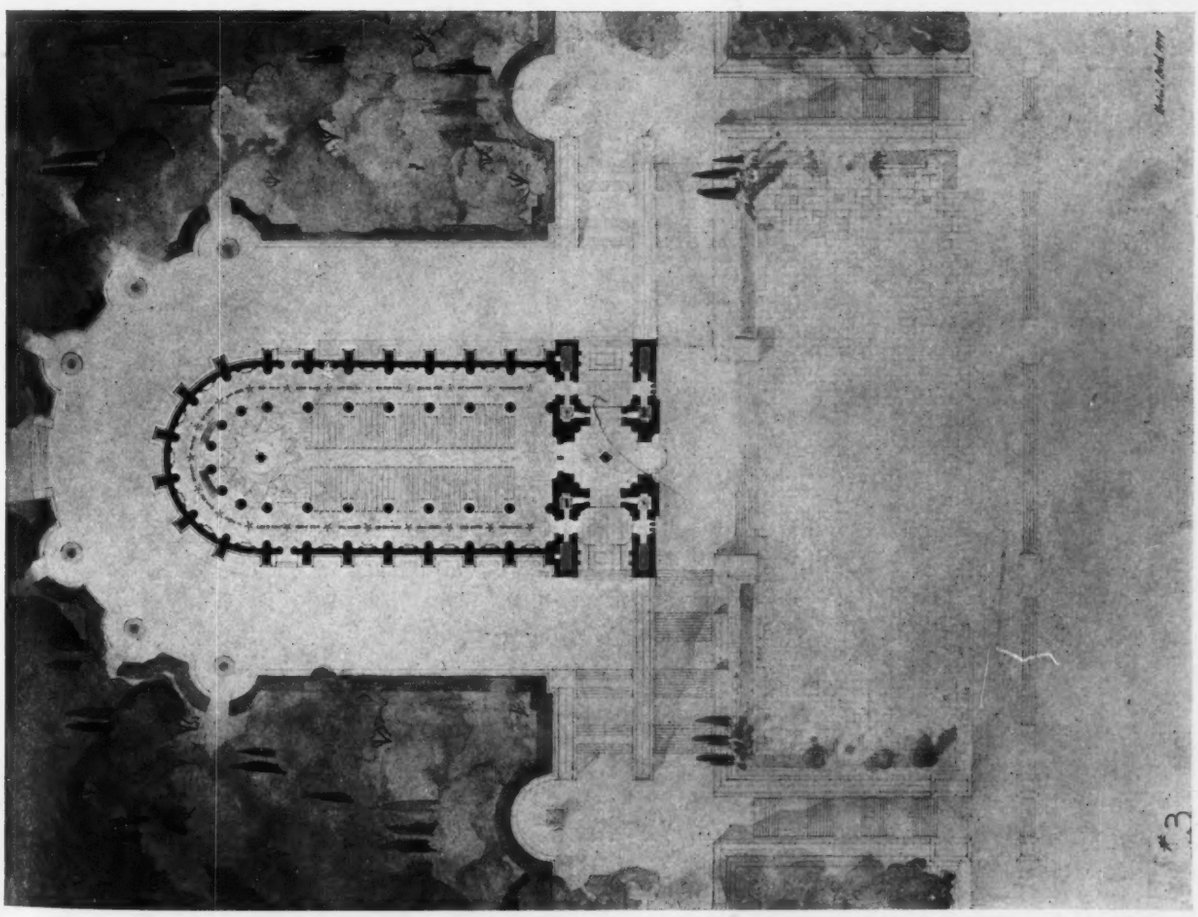
2ND MENTION—DESIGN FOR A WAR MEMORIAL CHAPEL BY DAVID T. JONES, OF PHILADELPHIA

LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

(See text on page 339)



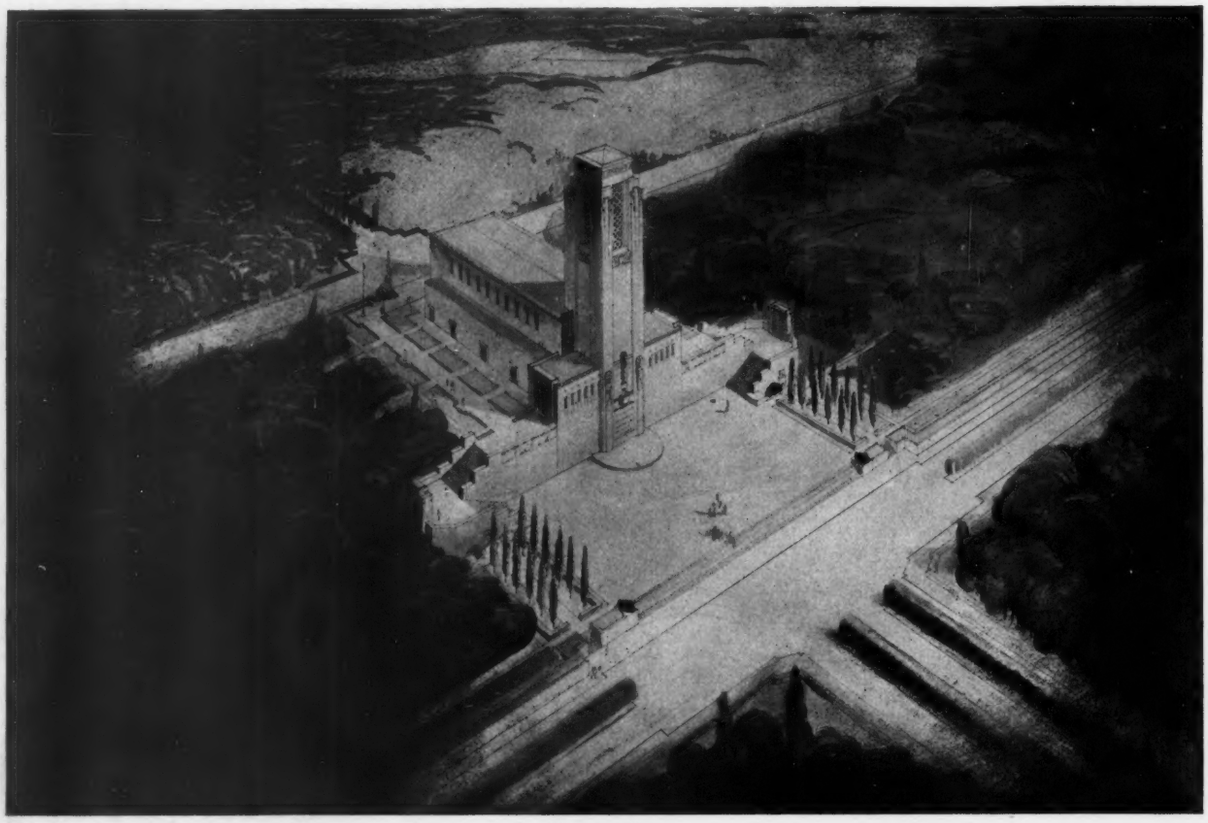
Elevation



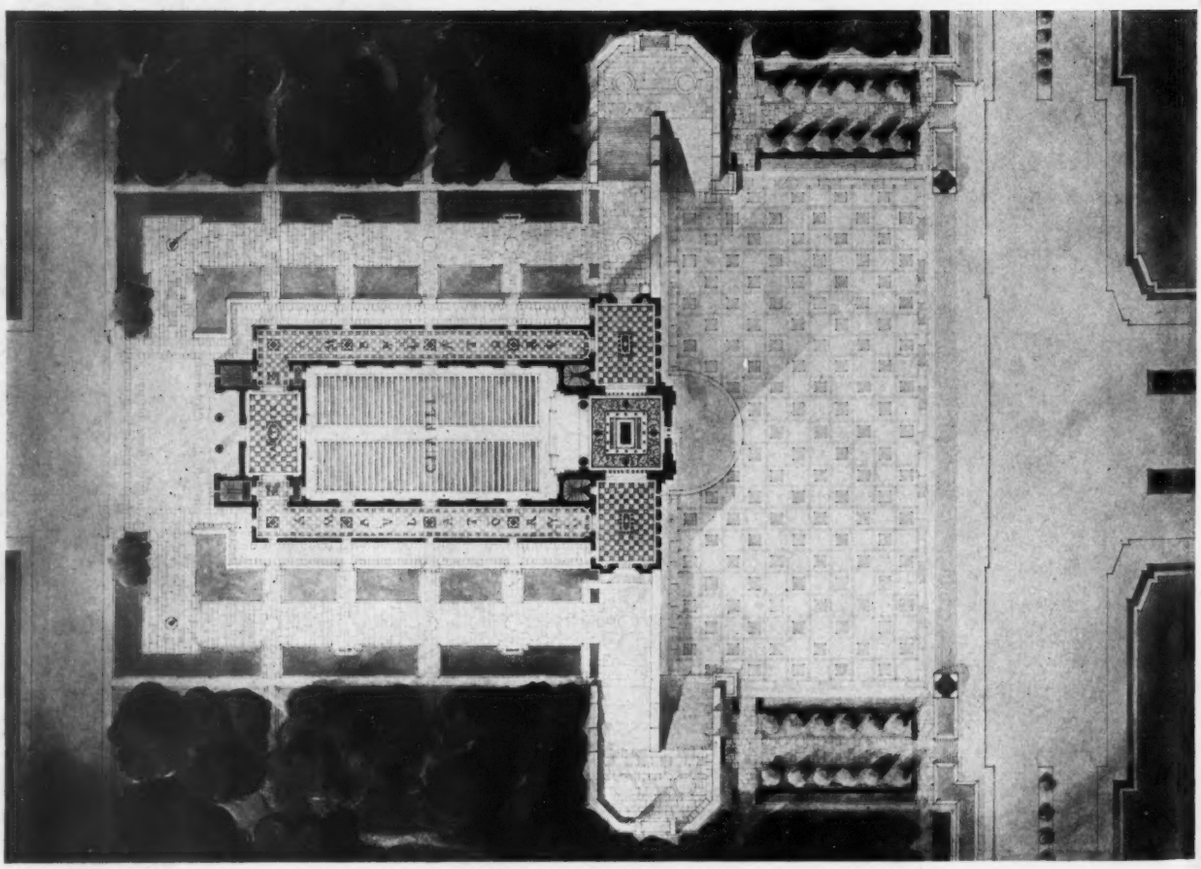
3RD MENTION—DESIGN FOR A WAR MEMORIAL CHAPEL BY MARTIN BECK, OF PRINCETON, NEW JERSEY

LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

(See text on page 339)



Perspective



4TH MENTION—DESIGN FOR A WAR MEMORIAL CHAPEL BY ANTHONY THORMIN, OF CLEVELAND, OHIO
LE BRUN TRAVELING SCHOLARSHIP COMPETITION FOR 1929

(See text on page 339)

INTERNATIONAL CONGRESS OF ARCHITECTS

A MEETING OF the American section of the Permanent Committee of the International Congress of Architects was held March 23, 1929, at the residence of the Chairman, Mr. Cass Gilbert, 1 East 94th Street, New York City.

The members present were Professor William A. Boring, Dr. C. Howard Walker, Dr. Warren P. Laird, Mr. John Russell Pope, Mr. J. Otis Post, Mr. J. Monroe Hewlett, and Mr. George Oakley Totten, Jr., Secretary.

Of the two remaining members, Mr. Glenn Brown was ill and Mr. C. C. Zantzinger was in Europe.

Messrs. Whitney Warren, J. E. R. Carpenter and Arthur Brown of San Francisco and John Holabird of Chicago were elected members of the Committee.

On motion of Mr. Gilbert the Secretary was directed to cable the following message to M. Poupinel, Honorary Secretary General of the Permanent Committee:

"American Section of the International Congress of Architects in session tonight begs to offer through you a wreath in token of our reverence for the great Marshal of France."

An invitation was read from the Hungarian Society of Architects inviting all American Architects to participate in the International Congress of Architects to be held in Budapest, September, 1930.

An invitation was extended to the Permanent Committee in Paris to hold the following Congress in America in 1932 during the Chicago World's Fair.

DETROIT ARCHITECTURAL BOWLING LEAGUE

THE DETROIT ARCHITECTURAL BOWLING LEAGUE finished its seventh season March 29th and on April 6th held its annual banquet at the Hotel Fort Shelby. The new officers were initiated and another big year is expected in 1929-1930. The officers are: President, J. J. Kahl; Vice-President, R. L. Wolfe; Secretary, J. McCormick; Treasurer, E. Jolson.

The final results for the past season are as follows:

	Won	Lost
Frank H. Nygren	52	29
McGrath & Dohmen	51	30
Albert Kahn, Inc.	44	37
VanLeyen, Schilling & Keough	44	37
Smith, Hinchman & Grylls	42	39
Malcomson & Higginbotham	41	40
Donaldson & Meier	39	42
Louis Kamper, Inc.	33	48
Janke, Venman & Krecke	31	50
Weston & Ellington	28	53

High Team Score	(1)	McGrath & Dohmen	1022
" " "	(3)	McGrath & Dohmen	2846
High Ind. Score	(1)	Gleasman (V S & K)	258
" " "	(3)	Kalsched (A K)	654
Most 200 Scores		Gleasman (V S & K)	22

NEW YORK ARCHITECTURAL BASEBALL CLUB

THE NEW YORK ARCHITECTURAL CLUB, INC., Baseball Club, composed of college players, has organized for the season of 1929 and is desirous of booking games with strong semi-professional teams within a radius of 150 miles from New York City, providing a suitable guarantee is paid. Kindly address all communications to M. L. J. Scheffer, Chairman of the Athletic Activities, The New York Architectural Club, Inc., 118 East 42nd Street, New York.

Courtesy Harcourt, Brace & Co.

DIEGO RIVERA

THE FINE ARTS MEDAL of the American Institute of Architects for 1929 was awarded to Senor Diego Rivera, painter of Mexico City, at the sixty-first convention of the Institute held in both Washington and New York for four days beginning April 23rd.

Rivera is internationally known for his murals, which are said to indicate his social philosophy. They describe an alliance of farm and industrial workers in a democratic state. Some picture an era of peace and social justice, natural wealth being enriched by science. This era Rivera represents as subsequent to a period when soldier, farmer, and industrial worker shall act together under arms to assure a peaceful and beneficent order. Other murals tell of the tyranny of the old regime.

The murals in the Education Building of Mexico are the work of Rivera. They were done under Vasconcelos, Obregon's Minister of Education. It is the Indian who is set forth as the Mexican in these murals. The industries of the Indian from colonial to modern times are portrayed, as well as the progress of the sciences, and the inner life of the Mexicans, accompanying which are portraits of a group of Martyrs.

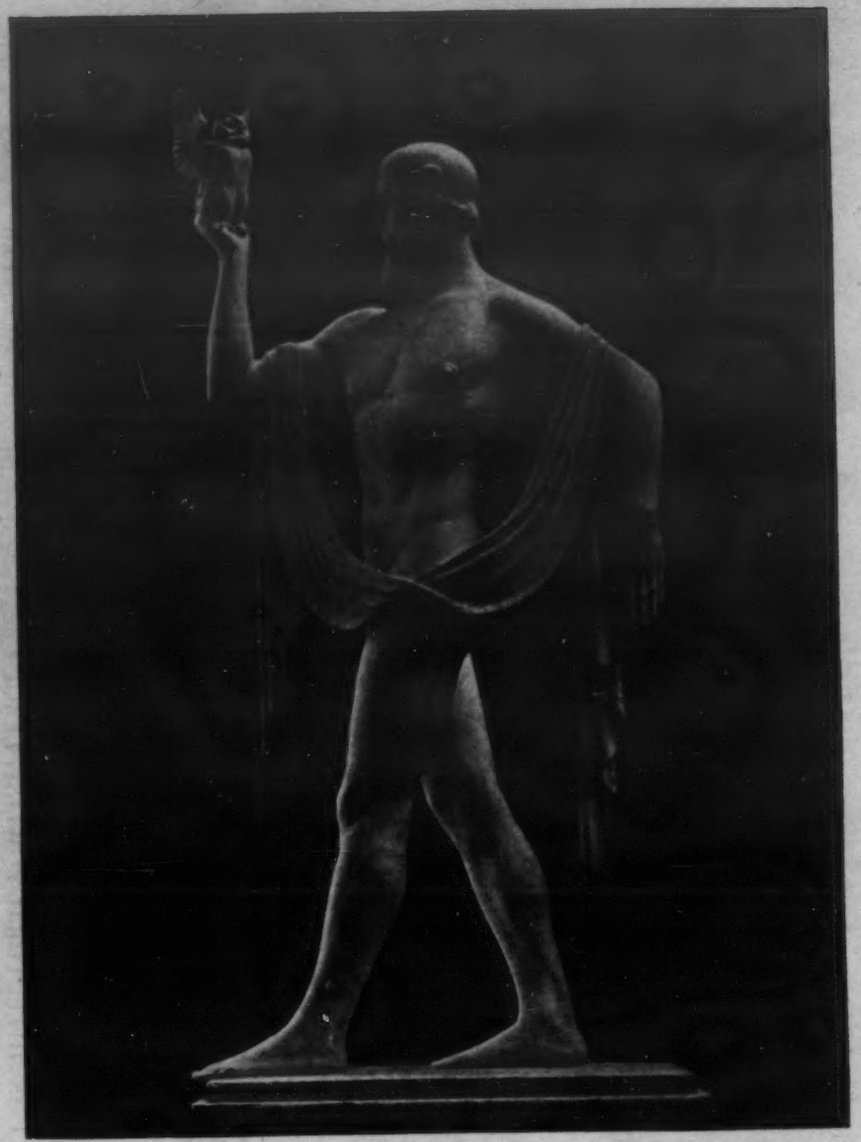
Rivera studied for fourteen years in Rome, Paris, and other European capitals. On his return to Mexico, he set out to revitalize Mexican art. He organized a union of painters and sculptors as a school which should interpret the life of the people, and which should exemplify the new nationalism of Mexico.

DAVID VARON PROPOSES LECTURE TOUR

PROFESSOR DAVID VARON, teacher of architectural design and author of books on composition and indication, is planning a lecturing trip in the near future and is open for engagements to speak before architectural clubs and other organizations in the middle west and in the east. Any group interested in booking him up is invited to communicate with him at 128 Madison Avenue, New York.

UNIV. OF MICH.

"Inspiration"



"Wisdom"

FIGURES FOR SUPREME COURT AND STATE LIBRARY BUILDING, EDWARD FIELD SANFORD, JR., SCULPTOR

CAPITOL EXTENSION GROUP, SACRAMENTO, CALIFORNIA—WEEKS AND DAY, ARCHITECTS

ARCHITECTURAL AND ALLIED ARTS EXPOSITION

THE ARCHITECTURAL AND ALLIED ARTS EXPOSITION was held in New York at the Grand Central Palace from April 15th to April 27th. On the opening night the Architectural League made its annual award of medals. The Gold Medal in Architecture was awarded to William Pope Barney of Davis, Dunlap, and Barney, Architects of Philadelphia, for the American Bank and Trust Company Building. A Silver Medal for works of major importance was awarded to Albert Kahn of Detroit for the Fisher Building in that city. The Silver Medal for Domestic Architecture was won by Frank J. Forster of New York for three residences. Honorable mention was awarded to Roger H. Bullard for a country home. Eugene Savage received the Gold Medal of Painting for his decorations for the Elks Memorial in Chicago. The Gold Medal of Sculpture was awarded to Ulric H. Elihusen of New York for his group of exhibits which included sculptures for the University of Chicago Chapel and other works at Christ Church, Cranbrook, Michigan. Ruth Dean received the Gold Medal of Honor for Landscape Architecture. The Birch Burdette Long Memorial Prize went to Chester B. Price for his drawings for the *Encyclopaedia Britannica*, depicting restorations of various classical architecture. Edmond R. Amateis won the Avery Prize for Small Sculpture for his figure, *Summer*.

On page 337 is reproduced a panel by W. T. Benda that was shown in the exhibition and some of the sculpture that was on view is illustrated opposite.

INFORMATION WANTED

WE ARE DESIROUS of securing a complete list of organizations in different cities similar to the Architect's Samples Corporation in New York, where manufacturers of building materials exhibit their wares for the information of the architect. Anyone knowing of such establishments in other cities will do us a favor by sending in their names and addresses, marked for the attention of the editorial department.

PRATT ARCHITECTURAL CLUB

THE SPRING ISSUE of the club *Bulletin* is now on the press and will be sent to all graduates of the Architectural School. If you do not receive a copy it is because we have not your correct address; the Club will be pleased to hear from you at 22 East 38th Street, New York.

The program of speakers for the Tuesday luncheons at the Fraternity Clubs' Building closed March 19th with a fine talk by Mr. L. T. Smith, President of the Building Managers' and Owners' Association. Mr. Smith explained the manner and method in which this association is cooperating with architects throughout the country in the planning of office and commercial buildings. We will continue to meet throughout the Summer every Tuesday in the Grill Room.

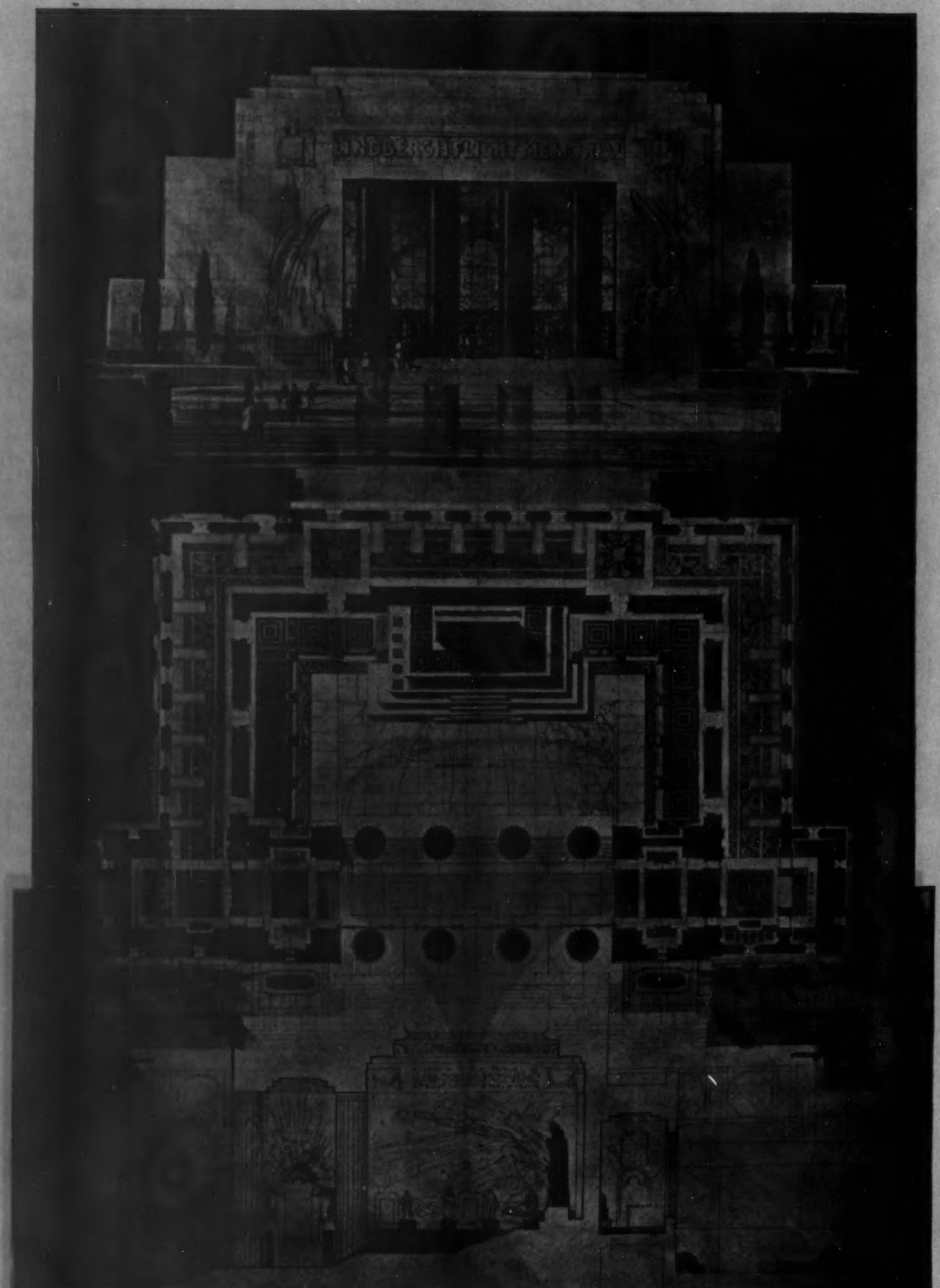
The Nominating Committee, after careful consideration, selected the following men to be voted for as new officers at the Annual Dinner, May 1st: President—Daniel O. Larsen, '12; Vice-Presidents—George F. Axt, '16, and Harrison Wilson, '09; Secretary—J. H. Amiral, '20; Treasurer—Frank E. Ward, '21; Ass't. Sec'y.—Burton Hall, '29; Ass't. Treas.—H. H. Bulmer, '25; Board of Governors—W. H. Gompert, '91; A. B. Lincoln, '15; A. D. Cole, '19.

Watch the next issue of PENCIL POINTS for the complete story of the Annual Dinner.

A CORRECTION

IN THE SPECIFICATION DESK in the March issue of PENCIL POINTS a sheet of construction details was published on page 208 in connection with a brief article on the first of the Standard Documents to be issued by the Philadelphia Building Congress. The page inadvertently carried the legend *Plate Issued by Philadelphia Building Congress in Connection with a Document for Architectural Woodwork:* this should have read *Plate Used by the Philadelphia Building Congress in Arriving at Conclusions Covered in the Text of a Document for Architectural Woodwork.* This detail sheet has not been issued for distribution with Bulletin No. 1.

GOLD MEDAL OF THE ARCHITECTURAL LEAGUE OF NEW YORK—C. P. JENNEWEIN, SCULPTOR



FIRST PRIZE DESIGN FOR LINDBERGH FLIGHT MEMORIAL AND EXHIBITION HALL, BY EDGAR F. BIRCSAK

A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

UNI. OF MICH.

THE A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

THE PROBLEM AND REPORT OF THE JURY OF AWARD

THE 1929 Competition for the A. W. Brown Travelling Scholarship established by Ludowici-Celadon Company was judged in New Orleans on April 9th and 10th by a Jury of five, whose report follows.

THE PROBLEM

The problem is the design of a Memorial and Exhibition Hall to commemorate the historic flight of Col. Lindbergh from New York to Paris and to provide a proper place for the exhibition of the many gifts he has received since that time. At present these gifts are housed in one wing of the building of the Missouri Historical Society in Forest Park at St. Louis.

It is assumed for the purpose of this problem that the city of St. Louis has decided to erect a Memorial including a building especially for housing these exhibits and has set aside for the purpose a definite site in the Park. While the surroundings are adequate to provide a very fine setting, the commissioners of the park have prescribed that no portion of the memorial or building, including any steps or other necessary projections, shall extend beyond the limits of a space 180 feet long and 115 feet deep. The ground at this location is practically level, beautifully wooded and landscaped. The 180 feet dimension runs parallel with one of the principal roads through the park so that the natural approach to the building will be from that side. There will be ample space between the roadway and the building for an entrance drive and parking spaces, although these need not be shown on the drawings.

The MEMORIAL is to be the principal feature of the design and may take any form the competitor chooses. While the building itself is not to be considered as the memorial, the memorial may be incorporated as a part or portion of the building, either on the exterior or the interior. The memorial may, on the other hand, be a separate unit, but in this case it must be studied in connection with the building so that the two will form an integral design.

Whether the memorial takes the form of a memorial hall, or atrium, a colonnade or arcade, a free-standing sculptured group, a wall treatment or a running frieze and whether it is essentially architecture, painting or sculpture is left entirely to the designer.

It is to be distinctly borne in mind that the memorial is to commemorate the historic New York to Paris flight and should not be a memorial to Col. Lindbergh personally.

In addition to the Memorial the building shall contain: Exhibition space of approximately 3,000 sq. ft. This space may be in one unit or divided into wings, or it may be a series of small rooms. Monumental Entrance Hall. Vestibule, to be controlled from the custodian's office. Custodian's Office. Coat Room for Visitors. Toilets for both Men and Women. Guards' Locker Room. The toilets and guards' locker room may be placed in the basement, which will also house, in addition to the heating plant, the necessary packing and storage rooms. The basement plan will not be shown.

All the main rooms mentioned shall be on the same general floor level, although differences of levels of two or three feet will be permitted if the designer wishes.

Due to the nature of the exhibits it is desirable to have the exhibition rooms lighted laterally rather than by skylight.

Choice of materials and type of architecture are left entirely to each competitor. The committee desires to call specific attention, however, to the fact that, while the donors of the scholarship are manufacturers of roofing tiles, the use of tile roofs in the design is not in any way to be considered essential or necessary and that the jury will not give any preference, in making their judgment, to designs in which such roofs have been shown.

There were 78 designs submitted by Architects and draftsmen from all sections of the country.

The Scholarship or first prize of two thousand dollars was awarded to Edgar F. Biresak of New York City. Second prize was given to R. Paul Schweikher of Chicago; third prize to W. Ray Winegar of Detroit; and fourth prize to O. Kline Fulmer of New Wilmington, Pa. The designs of these men are reproduced on the following pages. As required by the program the Scholarship Committee has investigated the personal qualifications of the competitor whose design was placed first by the jury and has confirmed the award of the Scholarship to him.

THE JURY REPORT

The program as issued for this competition was written so that the greatest latitude was given the competitors both in their choice of a parti and in its development; the form which the memorial could take, as well as its relation to the required exhibition space, was left entirely to the imagination of each designer.

Accordingly the conceptions of the competitors were of several different types, each one of which had its own individual merit. The concentration of interest as shown in the different developments of each type was a prominent factor considered in making the awards.

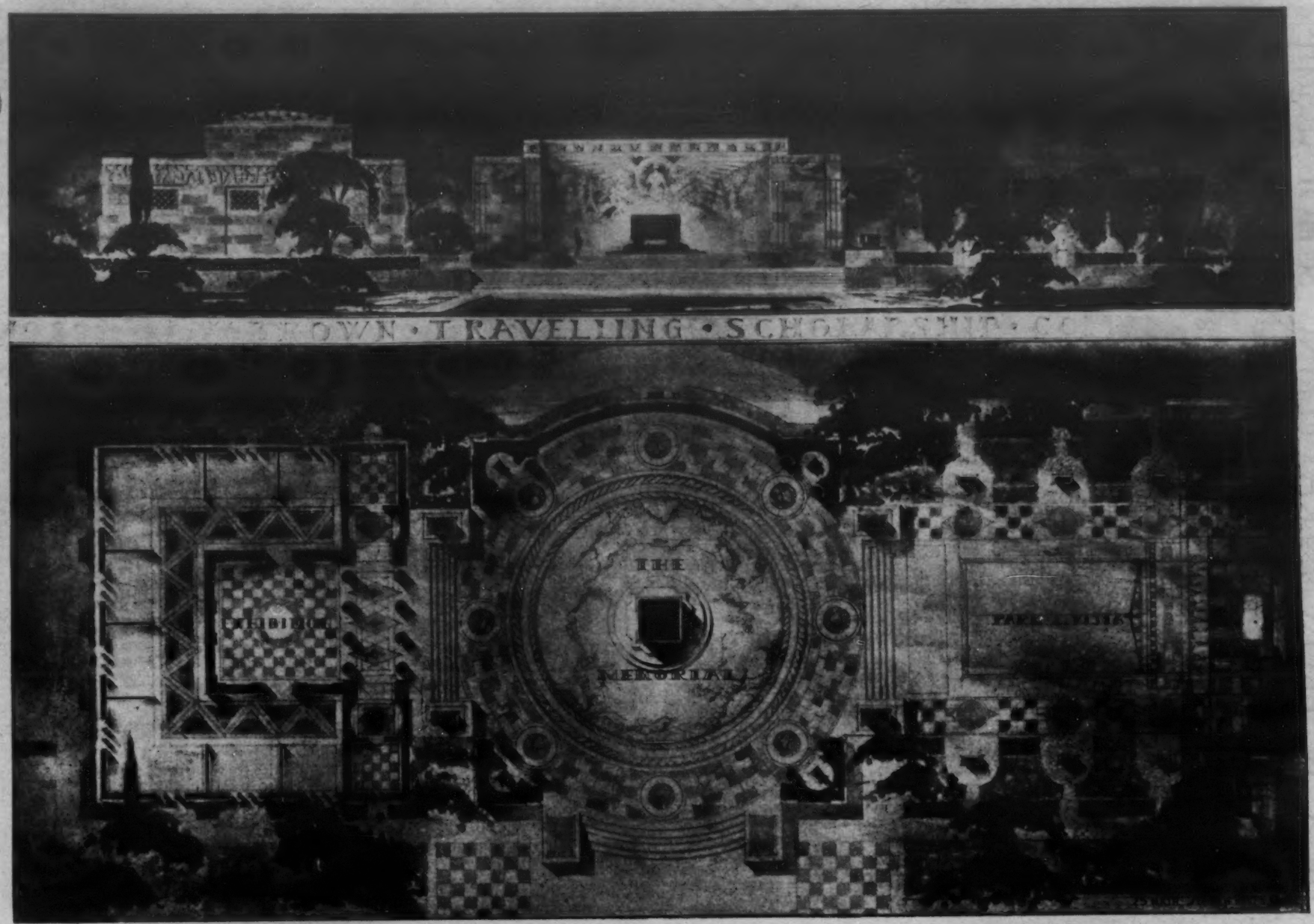
The Jury has considered all the drawings presented in the competition and in accordance with the suggestion in the printed form of competition presents a statement of the reasons for their awards.

Scholarship Award

This monument could be put in a park and could have its memorial expressed on the exterior or on the interior, or both. The designer did not consider that a high building to be seen from a distance was necessary, as it was a building to be seen from the road which passed it—a building by itself in the park. Its great merit is that of simplicity and directness of plan and of elevation and it

(Continued on page 90, Advertising Section)

UNIV. OF MICH.



SECOND PRIZE DESIGN FOR LINDBERGH FLIGHT MEMORIAL AND EXHIBITION HALL, BY ROBERT PAUL SCHWEIKHER

A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

THIRD PRIZE DESIGN FOR LINDBERGH FLIGHT MEMORIAL AND EXHIBITION HALL, BY W. RAY WINEGAR

A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

UNIV. OF MICH.

FOURTH PRIZE DESIGN FOR LINDBERGH FLIGHT MEMORIAL AND EXHIBITION HALL, BY O. KLINE FULMER

A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

This department conducts four competitions each month. A prize of $10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competition. Material received after the closing date is entered in the following month's competition.

THIS MONTH the prize winner in Class I is C. Westdahl Heilborn of Eugene, Oregon, whose sketch is reproduced below. We want to call our readers' attention to the fact that what appears in our reproduction to be the chimney of the house is a portion of another sketch that was made on the same sheet of paper.

Class II—A. C. Hanifin of Oakland, Cal.
Class III—Emanuel Desira of New York
Class IV—Donald B. Kirby of New York

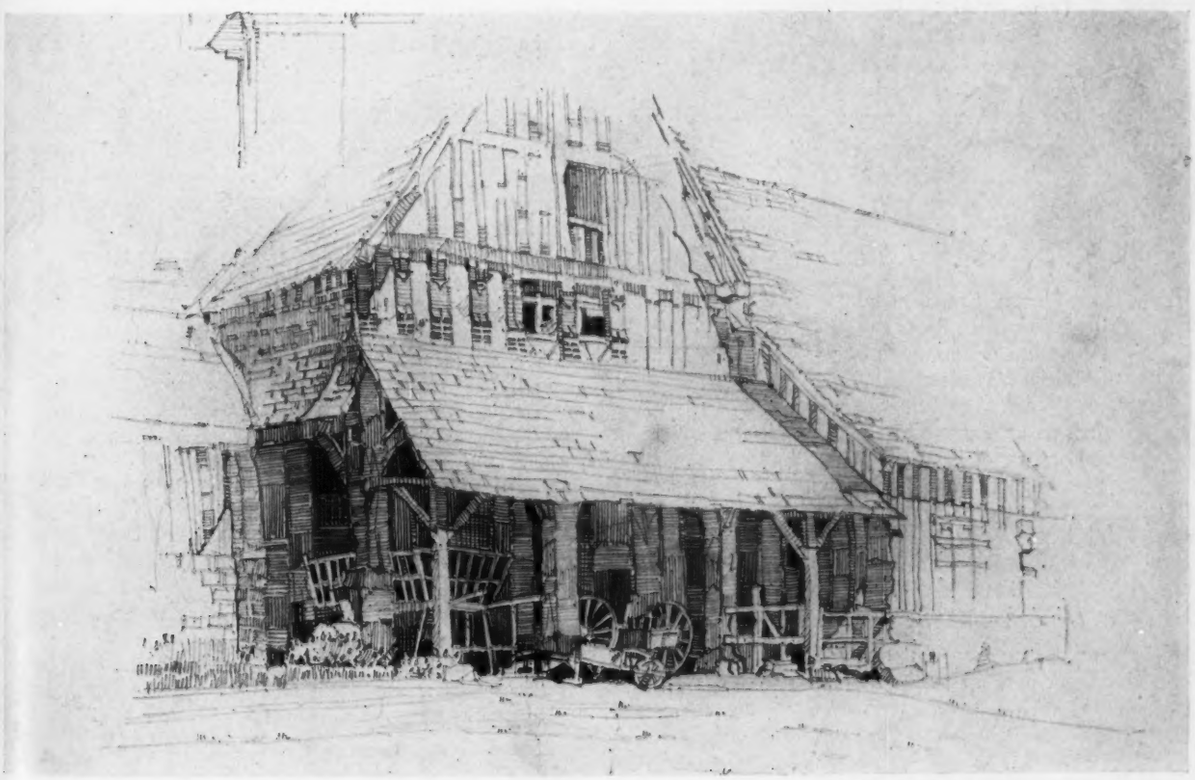
MR. WALTER J. CAMPBELL of Danbury, Connecticut, writes us that while he happened to be working on an oil rendering a young lady called to see him and said: "Oh! how beautiful. Whatta ye wanna be an architect for? You should be an artist." Which all goes to show . . . !

The competition for the BACHELOR'S RETREAT is now well off our hands and probably almost forgotten. The winners have received their checks and that seems to be that. Here let us explain that these observations have nothing whatsoever to do with the announcement which follows!

PENCIL POINTS' BABY COMPETITION

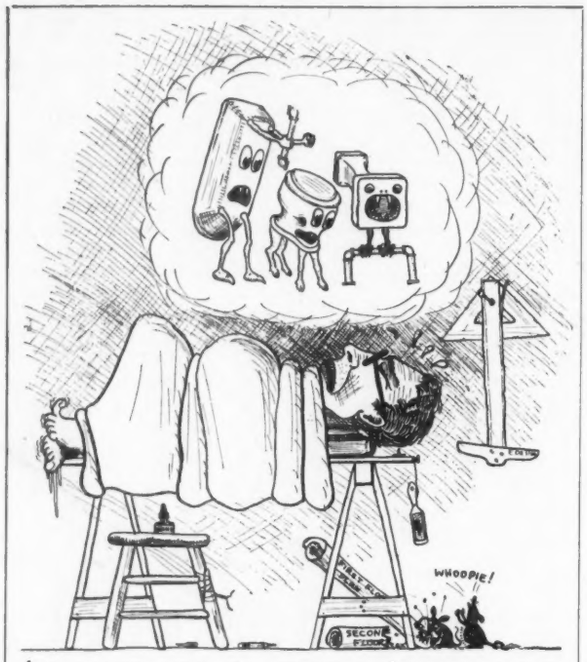
THE NEXT THING that seems to us of most vital importance around here is to determine which PENCIL POINTER is the proud parent of the most typical PENCIL POINTS' BABY between the ages of two and five years. In other words, who in the PENCIL POINTS' family is guiding the mind and footsteps of the next Sir Christopher Wren? (We for one hope that it will not be a Sir but a Lady.) In order to determine this most important fact we ask readers of this department to submit black and white photographs, shiny prints if possible, of any baby that would be eligible for this honor. Not more than one elevation, or perspective of each entrant may be submitted. Photographs should be accompanied by specifications, not to exceed one hundred words. All entries are to be sent to the PENCIL POINTS BABY CONTEST, 419 Fourth Avenue, New York, in order that they will be received by five o'clock on Monday, June 10th, when the competition closes.

Three prizes will be awarded and the winners' pictures will be published in the July issue. *Positively* no pictures of parents will be published! Scout around and let's see your idea of what a really good baby looks like.



PENCIL DRAWING ON CAMEO PAPER BY C. WESTDAHL HEILBORN, OF EUGENE, OREGON

(PRIZE—*Class One—April Competition*)



AFTER WORKING 18 HOURS STRAIGHT ON A "RUSH JOB" - AND SPENDING MOST OF IT FIGURING HOW TO ARRANGE THE FIXTURES IN A BATHROOM 4'-0" x 6'-0" AND HAVING TWO DOORS - A DRAFTSMAN RELAXES.

CARTOON BY EMANUEL DESIRA
(PRIZE—*Class Three—April Competition*)

BELIEVE IT OR NOT

By A. C. Hanifin, Oakland, Calif.
(PRIZE—*Class Two—April Competition*)

On a cottage just finished
Off Meadowbrook Road,
No announcement proclaims
Who designed the abode.

I recently observed in the
Herald I toted,
The project of an Architect
Who was not *very noted*.

One Sunday I read in the
Development Section
Of a move to do something
Without a collection;

And on an unmentioned Architect's
Drawing as printed:
The name of The Photographer
Was not even hinted.

THE OUTSIDE MAN

By James W. Martin of Monroe, Michigan

A wonderful chap is the "Outside man,"
He don't have a *thing* to do
Except to look wise and threaten to can
The whole damn bunch when the day is thru.

We have waded through the snowdrifts
And we've wallowed through the mud,
We have worked with day and night shifts
And have fought with wind and flood.

We have turned our angles squarely
And have run our levels true
And with batter boards set fairly
Have stretched our main lines thru.

We have checked the banks and trenches
And have seen the concrete mixed,
We have tallied up the benches
And had the grade marks fixed.

We've straightened out the tangles
Between the different trades
And squabbled with supply men
About inferior grades.

We've watched the placing of the steel
And checked the anchor bolts,
We've seen the engines started
And tallied up the volts.

We've waited for the whistle
And rushed to get a "Bite,"
Then sat and checked our figures
Through half the weary night.

A wonderful chap is the "Outside man"
For he don't have a *thing* to do,
But just look wise and threaten to can
The whole damn bunch when the day is thru.

VAGABOND ARCHITECTS CHANGE SAILING DATE

THE VAGABOND TOUR FOR ARCHITECTS will sail from New York June 26th on the *S. S. America* instead of July 3 as announced in March PENCIL POINTS. The Tour is under the auspices of the Bureau of University Travel, Newton, Mass., and information may be had from them or the leader, Donald Kirby, 180 Fifth Avenue, New York.

ARCHITECTURAL CLUB OF LONG BEACH

AT THE MARCH meeting of the Architectural Club of Long Beach the following officers were elected for the year 1929: Natt Piper, President; George W. Kahrs, Vice-President; and Joseph H. Roberts, Secretary-Treasurer.

A committee was appointed to investigate the feasibility of the issuance of Certificates of Merit by the Club in the various divisions of architectural work. The annual awarding of Certificates for purely local work patterned somewhat after the A.I.A. system of honor awards was enthusiastically endorsed.

AWARDS IN SILVERWARE COMPETITION

THE AWARDS in the Holmes and Edwards Silver Company Competition for a new pattern to be used for table silver have been announced. Edna B. Tucker of New York won the first prize of $2,500.00 Miss Tucker is a free lance artist.

The second prize of $1,000.00 went to I. C. Barousse, an architect of Elmhurst, Illinois.

The winner of the third prize of $500.00 withdrew the privilege to use his name and picture and returned check.

The fourth prize of $300.00 went to Henrik Hillbom of Wallingford, Conn., who is a designer and engraver of silverware.

Fifth prize of $100.00 was awarded to William C. Sponholz, an architect of Chicago.

SUMMER TOUR FOR LANDSCAPE ARCHITECTS

PROFESSOR P. H. ELWOOD, JR., of the Department of Landscape Architecture of Iowa State College will conduct a landscape study tour through Japan and China this summer. The purpose of the trip will be to study the treasures of Oriental gardens and landscape art, as well as the architecture and scenic beauties of the country, under the most favorable auspices.

The party will sail from Seattle on June 24th and will visit Japan, China, and the Philippines and Hawaiian Islands, returning to San Francisco on September the 18th.

Mr. Upton Close, formerly Professor of Asiatic Culture at the University of Washington, will give daily lectures on shipboard on various phases of Oriental art, customs, and literature, and will supervise the entire Chinese and Manchurian part of the tour. The total cost of the tour with the best accommodations throughout will be $1,350.00. Further information will be sent upon application to Professor Elwood, Department of Landscape Architecture, Ames, Iowa.

ATELIER CAIRNS OF MEMPHIS, TENNESSEE

THE ATELIER has not been meeting in its regular rooms at the home of the Memphis Academy of Arts of late but hopes to be back at the beginning of next season.

The Club gave up its Club Rooms to the use of other classes which needed the space. The Members have been meeting in the office of Hanker & Cairns through the kindness of Mr. Cairns, the Patron and for whom the atelier is named.

An epidemic of matrimony has just passed through the membership leaving the majority too married to get many Beaux-Arts problems finished, although several have gone in and received mentions.

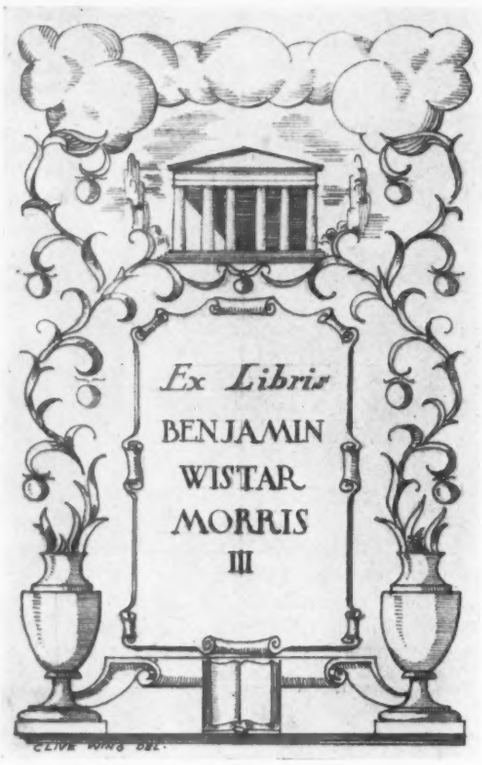
Several of the members have become interested in making measured drawings of old residences in and near Memphis, also compiling a short history of same.

We are planning and organizing a baseball team for the coming summer.

PRATT ADDS TO ARCHITECTURAL COLLECTION

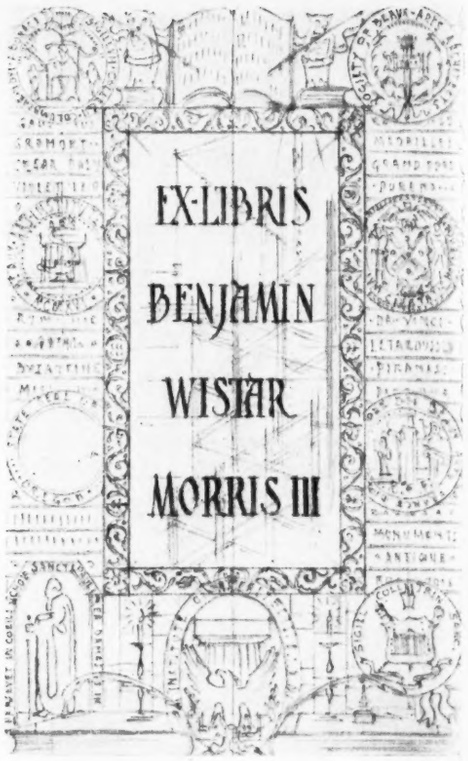
THE ARCHITECTURAL DEPARTMENT OF PRATT INSTITUTE, Brooklyn, N. Y., is enlarging its collection of original drawings, renderings, and the like, and is soliciting donations of this sort from former Pratt Students or others interested in furthering the cause of architectural education. Limited funds are available for the purchase of a few attractive renderings. Address A. L. Guptill, Pratt Institute, Ryerson Street, Brooklyn, N. Y.

MAP OF A STUDY TOUR DRAWN IN COLORED CRAYONS BY CLARENCE AND FRANK JONES, OF CHATTANOOGA
SUBMITTED BY DONALD B. KIRBY
(PRIZE—*Class Four—April Competition*)



Winning Design by Clive Wing

A Competition for a Bookplate Design



Design Placed 2nd, by Leonard B. Wannes

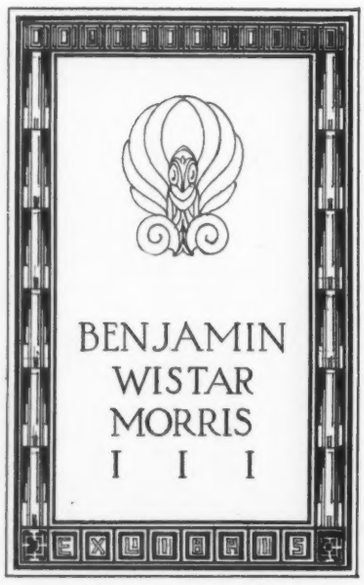
THE DESIGNS REPRODUCED here were submitted in a competition held by Benjamin Wistar Morris, Architect of New York, to secure a bookplate that would be suitable for use in both his architectural and personal libraries.

It was desired that the design be arranged for printing from an engraved plate in black and white, size approximately 2½″ in width by 4″ in height, and to include the words *EX LIBRIS, BENJAMIN WISTAR MORRIS (III).*

Money prizes were awarded in accordance with the decision of the Jury which was made up of an Architect, a Layman, and Mr. Morris.

It was also suggested in the program that the design respect the traditions of good plate design and composition, rather than the stressing of pictorial or naturalistic composition.

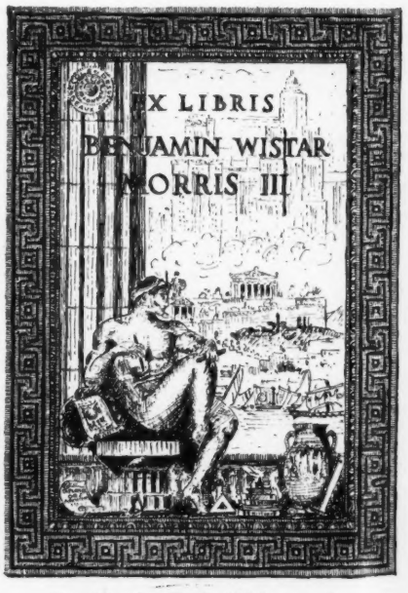
The competition, which was restricted to members of the office force, brought forth a number of interesting designs some of which are shown here.



Placed 3rd, by T. B. Temple

By Richard N. Wakefield

By C. Hunt Lewis, II



By Charles F. Schillinger, Jr.

DESIGNS SUBMITTED BY MEMBERS OF THE OFFICE OF BENJAMIN WISTAR MORRIS

THE SPECIFICATION DESK

A Department for the Specification Writer

SPECIFICATIONS FOR ACOUSTICS

By Frank B. Stevens, Jr.

THE PHYSICAL CHARACTERISTICS of the numerous materials available for acoustical correction vary to such a marked degree that different amounts of surface areas must be treated in order to effect the same acoustical results should any two different materials (or should two different types of the same material) be alternately considered for use within the same room or area. It is at once evident that the cost of other trades (such as plastering, painting, etc.) will be directly affected by the substitution of a different acoustical material on account of this difference in amount of surface areas treated.

Specifications for competitive bidding must be carefully prepared to establish an economical basis of comparison and at the same time set up a fair basis of bidding for the competing contractors. The differential in the varying surface areas treated and the consequent effect on the work of other trades must be adequately and carefully handled. And particularly so, since this differential is affected to a different degree by each individual acoustical material.

The following open competitive specifications have been worked out in an attempt to establish a fair competition on a true economic basis and at the same time eliminate undesirable and unsatisfactory results. They are suitable for use for any installation of acoustical correction where definite results are desired and where the amount of money invested justifies a careful analysis and execution of the problem.

The specifications are based on the following:

1. That the architect or engineer has made a tentative selection from all of the various acoustical materials available as being most suited for the purposes of the particular project in view.
2. That he has conferred with the acoustical engineer of the manufacturer of this material and has had analysis made showing the location and number of square feet of surface area necessary to treat with the material selected in order to obtain the results desired.
3. The location and amount of surface area treated has been either indicated clearly on the drawings or has been tabulated for incorporation in the specifications.
4. That the exact trade name, type and physical description of the acoustical material has been established for incorporation in the specifications.

Starting from this established data and information, the following specification allows desirable competition and is so worked out that a comparison of the resulting competitive proposals will allow a selection of the more suitable and economic installation available to meet the requirements of the particular project. They constitute the preliminary "long form" acoustical text of the 1929 edition of *Stevens Master Specifications*, devised, compiled and edited by Frank B. Stevens, Jr., structural consultant, Chicago.

The method of treating the problem is somewhat unusual and it is hoped that the use of these specifications will do much toward the elimination of those undesirable conditions extant in acoustical installations at the present time by virtue of unfair competition, misconception, ignorance and misrepresentation.

Phrases and paragraphs are so numbered that the specification writer is able to simply jot down the numbers, paragraphs and clauses he wishes to incorporate in the completed specification so that the typist can copy the material directly from the "Master Specification."

We shall be glad to hear from readers of this department commenting upon the specification.

ACOUSTICS

[NOTE: *This specification is intended generally to be used for treatments to prevent the reverberation and confusion of sound within enclosed spaces.*

For specifications covering "Sound Insulation" (i.e. treatments to eliminate changes in sound conditions due to the transmission of sound from one room to another) refer to Section 47-0. "Insulation."]

46-1 . SPECIAL NOTE:

.1 The Standard Form of the *General Conditions of the Contract* (Fourth Edition, copyrighted 1925) issued by the American Institute of Architects

.2 as well as the [Architects', Engineers']

.3 "Supplementary General Conditions"

.4 bound herewith

.5 are a part of this specification and the Contractor shall consult them in detail for instructions pertaining to his work.

[NOTE: *Use items .6 to .10 if the "General Conditions of the Contract" or the "Supplementary General Conditions" (or both) are not bound with this specification when issued.*]

.6 Copies of the

.7 "General Conditions of the Contract"

.8 "Supplementary General Conditions"

.9 are on file and may be referred to at the office of the [Architects, Engineers]

.10 where copies may be obtained.

46-2 . SCOPE OF WORK:

[NOTE: *The Architect or Engineer is urged to confer with the expert acoustical engineers of the more reputable manufacturers of acoustical materials and select those materials and methods most suitable in the solution of his particular problem.*

The manufacturer should be prepared to furnish authentic data from tests made at a reputable laboratory showing the acoustical efficiency of his material and should submit satisfactory evidence of the success of actual installations of his material erected over a period of at least two years.]

WORK BY OTHERS

.1 Sound insulating systems will be provided and installed by the Sound Insulating Contractor.

.2 Plaster brown coats back of acoustical material will be provided and installed by the Plastering Contractor.

.3 The decorating of acoustical materials will be done by others as specified under Painting and Wood Finishing.

[NOTE: *If competitive bids for different acoustical materials are desired it should be borne in mind that the cost of decorating will vary according to each acoustical material used and also that all acoustical manufacturers and contractors are not equipped to do this decorating. In this event, the Architect or Engineer may well include all decorating work under a cash allowance in the Painting contract and (by eliminating this variable factor from the acoustical specification) thereby place the various acoustical contractors on a more equitable basis for competitive bidding.*]

WORK REQUIRED

.4 The work required under this contract includes all labor, materials, equipment and services necessary for and reasonably incidental to the providing and installing of proper acoustical correction in

[NOTE: *Give list of spaces with accurate description of the extent and location of acoustical material, or use .5*]

.5 spaces and to the extent shown on the drawings

.6 excepting only work noted as being done by others.

46-3 . ERECTION:

.1 The work herein specified shall be delivered and installed promptly so as to cause no delay in other work or in the completion of the building. Before installing the work, the Contractor shall see that the work to which it is to be attached is suitable to receive same.

46-4 . EXAMINATION OF SURFACES:

.1 The Contractor shall examine and try all surfaces to which the acoustical materials are to be applied and shall notify the [Architects, Engineers] of any that are not suitable and shall see that same are corrected before applying any work, otherwise this Contractor shall replace at his own expense all work which may have to be removed to correct defects and shall replace same in proper manner together with all other work, finish, etc., disturbed.

46-5 . MATERIALS:

[NOTE: *On account of the varied characteristics of the different acoustical materials, the architect or engineer is urged to confer with the various reputable manufacturers of acoustical material and determine not only the amount and location of the surface area to be treated in any given area, but also the type of material to be used.*

In the event that competitive figures are required, the periods of reverberation should also be established as noted under Section 46-9.]

.1 All material used shall be [state type and manufacturer's trade name of material]

.2 as manufactured by [state manufacturer's name and address of local representative]

.3 and shall be applied in strict accordance with the manufacturer's directions.

[NOTE: *Make a short description of the surface appearance of the completed installation in accordance with the effect (other than the acoustical or sound absorbing) required.*]

46-6 . SAMPLES:

.1 The Contractor shall submit duplicate samples of the acoustical material he proposes to use to the [Architects, Engineers] for approval at the time of submitting his proposal.

46-7 . ANALYSES:

.1 Regardless of the number of square feet, or the location of the acoustical material

.2 as noted herein

.3 as shown on the drawings

.4 the Contractor shall examine the plans and specifications to determine the various finishes used and the conditions existing in the areas to be treated. He shall be wholly responsible for the accuracy of his examination and shall make his own analyses to determine the number of square feet and the location of the acoustical material necessary in order to obtain the exact acoustical correction specified.

.5 Should the number of square feet or the location (or both) of the acoustical material be different in any way from that

.6 noted herein

.7 shown on the drawings

.8 in order to obtain the acoustical correction specified, the Contractor shall so state in his proposal and shall submit with his proposal a diagram showing the number of square feet and the location of the material necessary to obtain the acoustical correction specified.

.9 One copy of all analyses and diagrams together with samples of the acoustical material shall be submitted with proposals.

46-8 . ADJUSTMENTS:

.1 Should the number of square feet or the location (or both) of the acoustical material be different in any way from that

.2 noted herein

.3 shown on the drawings

.4 in order to obtain the acoustical correction specified, the Acoustical Contractor shall make

(Continued on page 362)

SERVICE DEPARTMENTS

THE MART. In this department we will print, free of charge, notices from readers (dealers excepted) having for sale, or desiring to purchase books, drawing instruments and other property pertaining directly to the profession or business in which most of us are engaged. Such notices will be inserted in one issue only, but there is no limit to the number of different notices pertaining to different things which any subscriber may insert.

PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed under this heading free of charge.

QUERIES AND ANSWERS. In this department we shall undertake to answer to the best of our ability all questions from our subscribers concerning the problems of the drafting room, broadly considered. Questions of design, construction, or anything else which may arise in the daily work of an architect or a draftsman, are solicited. Where such questions are of broad interest, the answers will be published in the paper. Others will be answered promptly by letter.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions. Such notices will also be posted on the job bulletin board at our main office, which is accessible to all. Owing to the very large number of advertisements submitted for publication under this heading we are asking those desiring to use this service to make their advertisements as short as possible, *in no case to exceed forty words.*

Notices submitted for publication in these Service Departments must reach us before the twelfth of each month if they are to be inserted in the next issue. Address all communications to 419 Fourth Avenue, New York, N. Y.

THE MART

Glenwood A. Deacon, of Eubank & Caldwell, Inc., Roanoke, Virginia, would like to secure the March 1926 issue of PENCIL POINTS.

H. S. Deiser, 85 Water Street, Paterson, N. J., has for sale all copies of PENCIL POINTS from June 1920, the first issue, up to and including the current month.

Shigeo Hirata, 311 Elmwood Avenue, Ithaca, N. Y., would like to secure the following copies of PENCIL POINTS: August, October and December, 1928.

A. Nish, Architect's Dept., F. C. C., Canberra F. C. T., Australia, would like to secure No. 4 of Volume III of the White Pine Series containing the designs in a competition for *A House to Cost Twelve Thousand Five Hundred Dollars.*

Geo. W. Evans, St. John's University, Collegeville, Minnesota, has for sale the following copies of PENCIL POINTS: June and December, 1927; January, 1928.

S. Blet, Ecole des Beaux Arts, Quebec 39, Rm. 5, Joachim, Canada, has for sale colored postal cards, portraits and pictures from great masters of the XV-XVI Century—Italian, Flemish, French School.

George Santoro, 161 Davis Avenue, West Brighton, S. I., N. Y., has for sale the following back numbers of architectural magazines: *Architectural Record*, September, 1906; January, 1910; October, November, December, 1911; January to December, 1912; July to December, 1913; January to June, 1914; January to December, 1915 (July to December bound); January to December, 1916; January, 1917; October, 1918; March, May, June, July, November, December, 1919; February, April to July, October to December, 1920; January to December, 1921; January, March to June, 1922; March, 1923; April to December, 1924; January to December, 1925; January to December, 1926; January to May, November, December, 1927; and January to December, 1928. *Architectural Forum*, October, December, 1924; January to April, June, August, October, November, December, 1925; January to December, 1926; all except May number, 1927. *Architecture*, May and October, 1917; April, June, July, August, September, November, December, 1919; January to April, 1920; April to December, 1925; and June, 1928. *American Architect*, November and December, 1912; 52 Issues, 1913; 52 Issues, 1914; January to June, 1915. *Architectural Review*, all year, 1917; January, February, March, 1918. *The Journal of American Institute of Architects*, all year, 1925; all year, 1926; January to May, 1927.

G. R. Wright, 628-29th Street, Oakland, California, has for sale a complete set of PENCIL POINTS to date and would dispose of them either by volume or as a whole.

Collins C. Diboll, Jr., Architect, 1501 Canal Bank Building, New Orleans, La., would like to secure the following copies of PENCIL POINTS: April, 1923, and March, 1927, for which he will pay 50c. each.

Reginald Price, 62 Cavan Road, Clubmoor, West Derby, Liverpool, England, would like to secure the following copies of PENCIL POINTS: August, September, November, December, 1923; February, March, April, August, 1924; September, 1925.

C. A. Barth, Rm. 2100, 208 W. Washington Street, Chicago, Illinois, has for sale the following copies of magazines: *Architecture*, October, November, December, 1920; all for 1921 except November and December; all for 1923 except January and February; March, April, May, June, July, August, September, 1924. *The Architectural Record*, all for 1924 except January, February and March; all for 1925 except October, November and December.

Keith H. Davenport, 247 Hyland Avenue, Ames, Iowa, would like to secure copies of PENCIL POINTS from January to September, 1928, inclusive. Will pay 50c. a copy.

Harold Gimeno, Architect, 800 Elm Avenue, Norman, Oklahoma, would like to secure the February issue of 1926 PENCIL POINTS.

Ira H. Springer, 414-16th Avenue, San Francisco, California, will pay 50c. each for the July, September and December, 1920 issues of PENCIL POINTS, and has for sale the following issues at 40c.: November, 1921; September and October, 1922; October, 1923; and December, 1926.

(Continued on page 94, Advertising Section)

all arrangements with, pay all costs to, and collect all deductions in price from all other Contractors whose work will be affected by such increase or decrease, or by such change in location.

46-9 . BASIC DATA:

Periods of Reverberation

.1 Regardless of the number of square feet, or the location (or both) of the acoustical material
.2 noted herein
.3 shown on the drawings
.4 the Acoustical Contractor shall effect an acoustical correction such that the periods of reverberation within the rooms or areas (without any audience or occupants) will be not more than

[NOTE: *List areas and note maximum periods of reverberation required. Good practice will require a maximum of 4.8 seconds in large Auditoriums, 3.0 seconds in Theatres, 2.8 in Assembly Halls, etc. These figures may best be obtained through the acoustical engineers of the reputable manufacturers.*]

Pitch and Intensity

.5 Computations of analyses to obtain the periods of reverberation specified shall be based upon a pitch of

[NOTE: *For Auditoriums, etc., a pitch of 512 vibrations per second is usual. For areas where high pitched sounds are originated, it is desirable to use a pitch of 1024 vibrations per second.*]

.6 512
.7 1024
.8 vibrations per second and upon standard uniform intensity (after acoustical correction specified has been installed) as assumed in the formula of Professor Wallace C. Sabine.

Furnishings

.9 In making his analyses of the acoustical correction, the Contractor shall assume the following furnishing in the various rooms and areas treated:-

[NOTE: *Give list of areas treated noting such items as carpets (aisles or entire floor area), number of upholstered seats, number plain seats, number and extent of heavy or fairly heavy draperies, curtains, etc., and such other items as will affect the periods of sound reverberation.*]

46-10. TESTS:

.1 After all acoustical material has been installed and completed and has been decorated (using materials designated by the manufacturer of the acoustical material used) and after the various
.2 seats
.3 upholstery
.4 carpets
.5 draperies
.6 noted herein before have been installed, the Contractor shall employ the services of a representative of the Bureau of Standards, Washington, D. C.
.7 and also the services of an independent acoustical engineer selected by the [Architects, Engineers] and shall cause tests to be conducted in accordance with their instructions and under their direction to establish the periods of reverberation existing in the areas acoustically corrected under this contract. The Contractor shall pay all expenses in connection with the making of these tests and the employing of the individuals specified.

46-11. GUARANTEE BONDS:

.1 The accepted Contractor shall furnish and pay for a bond or bonds satisfactory to the
.2 Owner
.3 in the full amount of the contract as surety for the due and faithful performance of his contract and guaranteeing that the acoustical correction as installed is such that the periods of sound reverberation in the areas treated (under the conditions specified under "Tests") are maximum for the respective areas; and that he will provide without additional cost to the Owner, such acoustical correction as may be necessary to obtain these maximum periods of sound reverberations in the event that the periods of reverberations are exceeded when the acoustical correction installed is tested as specified under "Tests"; that there are no defects in materials or workmanship which may appear within a period of five years; that he will substitute without additional expense to the Owner any materials or workmanship which show defects within five years with finished and approved new materials; and that he will repair and put in good condition any materials, furnishings or fixtures damaged through defects in materials or workmanship or on account of changes due to failure under "Tests" of obtaining the maximum periods of reverberations specified.

46-12. DECORATING:

[NOTE: *In decorating the surfaces of acoustical material, only the methods and materials recommended by the manufacturer of the acoustical material used should be utilized so as not to decrease the efficiency of the installation.*

If competitive bids for various different acoustical materials are desired, it should be borne in mind that the cost of decorating is liable to vary according to each particular acoustical material used and also that all acoustical manufacturers and Contractors are not equipped to do this decorating. In this event the Architect or Engineer may well include the decorating work under a cash allowance in the Painting Contract and (by eliminating this variable factor from the acoustical specification) thereby place the various Acoustical Contractors on a more equitable basis for competitive bidding.]

46-13. SCAFFOLDS:

.1 All scaffolds
.2 will be provided by others
.3 shall be provided by this Contractor.

46-14. RUBBISH:

.1 At the completion of the work contemplated under this contract, this Contractor shall remove

(Continued on page 90, Advertising Section)

The ELDORADO PAGE for 1929

Sketching with ELDORADO the Master Drawing Pencil

THE technique demonstrated on this page is perhaps as easy as any method of sky indication. It is rapid. The lines across the sky must of course be well designed; spaced so as to break up the area nicely and be effective with the lines of the building. In most cases a soft lead should be selected, though of course the paper as well as the tone of the drawing should decide this matter. A 3B lead was used here on a smooth kid-finish bristol.

This is one of a series of Pencil Lessons prepared by Ernest W. Watson. Write on your letterhead for sample of Dixon's Eldorado, "The Master Drawing Pencil." Joseph Dixon Crucible Co., Pencil Dept. 167-J, Jersey City, N. J.

SPECIFICATIONS FOR ACOUSTICS

By Frank B. Stevens, Jr.

(Continued from page 362, Editorial Section)

from the building all rubbish and accumulated matters of whatever nature not caused by other trades and shall leave the work in a clean, orderly and acceptable condition.

46-15. PLASTER PATCHING, ETC:

.1 All plaster patching and glass breakage caused by this Contractor in the installation of his work shall be made good and paid for by this Contractor. The balance of plaster patching and glass breakage will be paid for by others.

46-16. ALLOWANCES:

.1 The Contractor shall submit an alternate proposal for providing and installing [state brand and type of material]

.2 as manufactured by [state manufacturer]

.3 in lieu of the acoustical material specified.

.4 This alternate material shall be installed in strict accordance with the manufacturer's specifications and the Contractor shall comply with all requirements as to analyses, tests, guarantee bonds and basic data as well as other requirements of these specifications for Acoustics so as to obtain the results specified.

.5 Contractor shall make all arrangements with, pay all costs to, and collect all deductions in price from the other Contractors whose work will be affected by the acceptance and use of this alternate material in lieu of that specified.

THE A. W. BROWN TRAVELLING SCHOLARSHIP COMPETITION FOR 1929

(Continued from page 351, Editorial Section)

is well proportioned in both respects. It especially recognizes the possibility of combining architecture, sculpture and mural painting and adequately recognizes all three. The building could be entered from one factor to another factor and at each step in progress it would have a very interesting character.

The entrance is through a propylea to a court which in itself has great possibilities of beauty and at the back of which is a memorial monument. Around this court on three sides is the museum while the walls of the court itself are covered with mural paintings. The scale of the design is large, monumental and grandiose, well proportioned, well massed, and with a fine sense of accessory detail. The rendering is strong and excellent. As the building is approached one ascends separate terraces so that the memorial figure at the back of the main court would have fine effect in its elevation as the building is entered. Though the memorial is inside the building in the court, the peristyle is open and the memorial could be seen as the building is approached at all times—whether by day or when lighted at night.

Whatever adverse criticism the Jury has to express is in relation to a wish for more finesse of detail which would have given further distinction to the design.

Second Prize

This is a conception totally different from the design placed first. The memorial consists of a central motive in a court, the back wall of which is made into a hemicycle upon which is displayed in bas-relief a glorification of aviation. This provides a high wall to serve as a fine background against which the monument is silhouetted. The museum building, while related to this large central motive, is placed distinctly upon one side of it as a secondary mass, and is a simple well planned building. The special qualities of this design are originality of conception and great refinement of treatment in all its details, its general conception and its rendering.

The criticism: The chief motive is not adequately developed. The jury felt that the center spot should be crowned by an important, probably colossal, figure and that its base and the immediate architectural factors of the base should be more spread on all sides of the monument. Also, that the museum building should be more subordinated to the really fine monument and hemicycle.

Third Prize

This design resulted from another entirely different conception and "parti-pris." It is essentially a tower carrying an aviation light to be seen from great distances and to locate the memorial. The tower and the light are in themselves the memorial. The museum is separated into two halls forming low flanking motives for the tower. The tower is octagonal with buttresses upon the lines of the radii, decreasing in successive terraced planes towards its summit, the vertical lines being maintained by the buttresses. It is well proportioned.

The criticism: The principal criticism is that the entrance is very small, probably inadequate for circulation through the museum, and deserves greater importance. The top stage and the lamp above it are too small and the setting back of the buttresses stage after stage in equal degrees would be materially improved by being graded, so that they would set back in sequenced lateral distances. The rendering is good.

Fourth Prize

Simple direct plan, the museum making a horizontal, exedra-like background to an advanced memorial shaft. The masses are very simple. The embellishment and symbolism of the museum is entirely in a bas-relief frieze making a long horizontal zone of sculpture as a crowning note of the museum wall. The shaft well in advance of its background is a hexagon—a very unfortunate selection to make for a shaft, as it never has a good proportion of light and shade from any point of view. An octagon is greatly preferable. If the hexagon is to be used, the front plane of the hexagon should be parallel with the plane behind it to maintain the same tone of light. The crowning motive of the shaft, to give richness of shadow, is not well done as to scale, and would be extremely difficult to be made satisfactory from all points of view on a hexagonal plan. The rendering is simple, direct and good. The approaches at the base line of the plan are disturbed and do not centralize.

The jury felt that certain other drawings showed merit that was deserving of recognition and accordingly the following mentions were given:

1st Mention (Placed) M. B. Bohm, New York City
1st Mention—John Rex Cunningham, Stillwater, Okla.
1st Mention—Robert W. Cutler, New York City
1st Mention—Harold H. Fisher, Uniontown, Pa.
Mention—Elmo K. Lathrop, Detroit, Mich.
Mention—Luther Lashmit, Winston-Salem, N. C.
Mention—Loran J. Ellis, New York City
Mention—Willard J. Perkins, Pittsburgh, Pa.
Mention—Frank H. Baden, Los Angeles, Cal.

Jury of Award
C. Howard Walker, Boston
Wm. Jones Smith, Chicago.
Eric Gugler, New York City
Barry Faulkner, New York City
Addison Worthington, Baltimore